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# Mission Description and In-Flight Operations of ERBE Instruments on ERBS and NOAA 10 Spacecraft

*February 1987 Through February 1990*

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## Abstract

*Instruments of the Earth Radiation Budget Experiment (ERBE) are operating on three different Earth-orbiting spacecraft. The Earth Radiation Budget Satellite (ERBS) is operated by the National Aeronautics and Space Administration (NASA), and the NOAA 9 and NOAA 10 weather satellites are operated by the National Oceanic and Atmospheric Administration (NOAA). This paper is the third in a series that describes the ERBE mission, in-orbit environments, instrument design and operational features, and data processing and validation procedures. This paper describes the in-flight operations for the ERBE instruments aboard the ERBS and NOAA 10 spacecraft for the period from February 1987 through February 1990. Validation and archival of radiation measurements made by ERBE instruments during this period were completed in May 1992. This paper covers normal and special operations of the spacecraft and instruments, operational anomalies, and the responses of the instruments to in-orbit and seasonal variations in the solar environment.*

## Introduction

The objective of the Earth Radiation Budget Experiment (ERBE) is to determine long-term trends in monthly averages of the Earth's longwave and shortwave radiation fields. To accomplish this objective, ERBE instruments were launched into Earth orbits aboard the Earth Radiation Budget Satellite (ERBS) (operated by the NASA Goddard Space Flight Center (GSFC)) in October 1984 and aboard the NOAA 9 and NOAA 10 spacecraft (operated by the National Oceanic and Atmospheric Administration (NOAA)) in December 1984 and September 1986, respectively. Validation and archival of data from the first 15 months of instrument operation, November 1984 through January 1986, were completed in March 1990. Reference 1 describes mission strategy and operation of the ERBE instruments aboard the ERBS and NOAA spacecraft during that 15-month period. Reference 1 also gives an overview of the ERBE mission, the design and operational features of the ERBE instruments, and a description of the ERBE science data processing. Validation and archival of data from the second year of instrument operations, February 1986 through January 1987, were completed in July 1991. Reference 2 describes the operation of the ERBE instruments during that second year.

This paper describes the in-orbit operation of the ERBE instruments aboard the ERBS spacecraft from February 1987 through February 1990 and of the instruments aboard the NOAA 10 spacecraft from February 1987 through May 1989. Validation and archival of data from these satellite months were

completed in May 1992. The scanner instrument aboard the NOAA 10 spacecraft ceased operating in May 1989, and that aboard the ERBS spacecraft ceased operating in February 1990. The scanner instrument aboard the NOAA 9 spacecraft had ceased operating in January 1987. (See ref. 2.) Hence, after February 1990, no ERBE scanner instruments were operational. However, the nonscanner instruments on all three spacecraft continue to operate and to provide valuable Earth radiation budget data. This paper discusses normal and special spacecraft and instrument operations, operational anomalies, and the responses of the instruments to in-orbit and seasonal variations in the solar environment during the final months of ERBE combined scanner/nonscanner operations.

## Nomenclature

### Acronyms and Abbreviations:

ACR	active cavity radiometer
AVHRR	Advanced Very High Resolution Radiometer
BB	blackbody
CAL	calibration
CPU	central processing unit
DAAC	Distributed Active Archive Center
DAC	digital-to-analog converter
Det	detector
EOSDIS	Earth Observing System Data and Information System

ERBE	Earth Radiation Budget Experiment
ERBS	Earth Radiation Budget Satellite
FOV	field of view
FOVL	field-of-view limiter
GSFC	Goddard Space Flight Center
Hex	hexadecimal
HIRS	High-Resolution Infrared Radiometer Sounder
HK	housekeeping
INT	internal
IVT	instrument validation tape
LaRC	Langley Research Center
LW	longwave
MAM	Mirror Attenuator Mosaic
MFOV	medium field of view
NASA	National Aeronautics and Space Administration
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
NS	nonscanner
NSSDC	National Space Science Data Center
PAT	processed archival tape
POCC	Payload Operations and Control Center
QC	quality control
RAT	raw archival tape
ROM	read-only memory
SAGE	Stratospheric Aerosol and Gas Experiment
SAS	solar aspect sensor
SC	scanner
SMA	Solar Monitor Assembly (on non- scanner instrument)
SOCC	Satellite Operations and Control Center
SW	shortwave
SWICS	Shortwave Internal Calibration Source

TDRSS	Tracking and Data Relay Satellite System
temp.	temperature
TOA	top of atmosphere
TOT	total
UT	universal time
WFOV	wide field of view

### Symbols

A,B	azimuth positions, deg
$\hat{\mathbf{N}}$	unit vector in direction of orbit angu- lar momentum
$V$	component of spacecraft velocity vector
$X, Y, Z$	coordinate axes
$\alpha$	azimuth angle, deg
$\beta$	beta angle (angle between Sun and orbit angular momentum vectors), deg
$\phi$	elevation (scan) angle, deg
Subscripts:	
$E$	ERBS
$LH$	local horizon
$N$	NOAA
$NS$	nonscanner
$SC$	scanner
$\alpha$	azimuth angle
$\phi$	elevation angle

### Mission Overview

The goal of the Earth Radiation Budget Experiment is to produce monthly averages of longwave and shortwave radiation parameters on the Earth at regional-to-global scales using radiation measurements obtained from three sets of nearly identical instruments flying on three separate spacecraft. These three spacecraft are the ERBS spacecraft (operated by the GSFC) and the NOAA 9 and NOAA 10 spacecraft (operated by the NOAA).

The ERBS spacecraft was launched by the Space Shuttle *Challenger* in October 1984 and was the first spacecraft to carry ERBE instruments into orbit. The second and third sets of ERBE instruments were launched aboard the NOAA 9 and

NOAA 10 operational meteorological satellites in December 1984 and September 1986, respectively. The Payload Operations and Control Center (POCC) at GSFC directs operations of the ERBS spacecraft and its ERBE and Stratospheric Aerosol and Gas Experiment (SAGE) II instruments using both ground stations and the Tracking and Data Relay Satellite System (TDRSS) network. The Information Processing Division at GSFC receives and processes spacecraft and telemetry data from ERBS and provides that data to the Langley Research Center (LaRC) for further processing. GSFC also provides LaRC with ephemeris data for all three spacecraft. The Satellite Operations and Control Center (SOCC) at the National Environmental Satellite, Data, and Information Service (NESDIS) operates the NOAA spacecraft and their ERBE instruments, provides decommutation processing of the telemetry data, and generates ERBE data tapes for LaRC.

### **Data Processing, Validation, and Distribution of Science Data Products**

The Langley Research Center has the responsibility of processing and validating all science data from the ERBE mission and of distributing the resulting data products to the science community. The ERBE data processing system at LaRC uses modular software subsystems to process the ERBE data, starting with the input telemetry and ephemeris data from GSFC and NOAA, and ending with the production of the required science data products.

Figure 1 shows the major steps in the science data processing, together with the primary input and output data products. These steps are discussed in detail in reference 1. Major data products are the raw archival tape (RAT) and the instrument validation tape (IVT) from the Merge/Field of View (FOV) Count Conversion subsystem, the processed archival tape (PAT) from the Inversion subsystem, and monthly averages from the Monthly Time/Space Averaging subsystem. Additional data products produced at the final processing stage include a nested averages product, a solar monitor data product, and a scene validation product. All archival data products are distributed first to the ERBE Science Team for review and validation and then to the National Space Science Data Center (NSSDC) for archival. In 1993, the archival responsibility for ERBE data products moved from NSSDC to the LaRC Distributed Active Archive Center (DAAC), which is part of the Earth Observing System Data and Information System (EOSDIS). Future requests for ERBE data

products should be directed to the LaRC Distributed Active Archive Center<sup>1</sup> (DAAC).

Tables 1–3 present summary information about the RAT and PAT archival products for each spacecraft for each month of operation covered in this paper. The information includes the percentage of data output to the RAT and to the PAT, the date of archival at NSSDC, and a notation on special operational events during the month.

### **Instrument Design and Operational Capabilities**

Instrument design is discussed in detail in references 1–4. The ERBE nonscanner and scanner instruments (fig. 2) have several important design features in common. Both instruments have rotating azimuth and elevation beams that give them the capability to rotate the optical axes of the detectors in two degrees of freedom. Both instruments can perform two different types of in-flight calibrations: solar calibrations using the Sun as the calibration source, and internal calibrations using temperature-controlled blackbodies and special Shortwave Internal Calibration Sources (SWICS). Both instruments have microprocessors that process and execute ground-commanded or stored commands to direct and control their operation.

The nonscanner instrument (fig. 2(a)) consists of four Earth-viewing detectors and one solar monitor detector located on the head assembly. The four Earth-viewing detectors are unchopped active cavity radiometers (ACR's), whereas the solar monitor is an unfiltered chopped ACR designed to measure direct solar radiation for calibrating the Earth-viewing detectors. Two of these detectors have wide field-of-view (WFOV) apertures allowing the detectors to view the entire disk of the Earth; the other two detectors have medium field-of-view (MFOV) apertures allowing the detectors to view an area about 1100 km in diameter. Two of the Earth-viewing detectors, one WFOV and one MFOV, and the solar monitor detector measure total radiation, whereas the other two Earth-viewing detectors measure shortwave radiation. The spectral characteristics of the five nonscanner detectors are listed in table 4(a). The total radiation detectors are unfiltered, and the shortwave spectral bands are achieved by use of fused silica dome filters placed over the detectors.

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<sup>1</sup>Langley Distributed Active Archive Center, Mail Stop 157B, NASA Langley Research Center, Hampton, VA 23681-0001; (804)864-8656; FAX (804) 864-8807; email userserv@eosdis.larc.nasa.gov or userserv@192.107.191.17

The scanner instrument (fig. 2(b)) has three co-aligned detectors, each consisting of an active and a compensating thermistor bolometer flake. These detectors are essentially identical in design except for optical filters on two of the detectors that restrict their spectral ranges. (See ref. 3 for more detail.) The spectral characteristics of the three scanner detectors are listed in table 4(b). The Mirror Attenuator Mosaic (MAM) assembly of the scanner instrument directs attenuated, diffuse solar energy to the instrument as the Sun passes through the field of view of the detector during solar calibrations.

Both the nonscanner and scanner instruments can operate in several different modes so that radiation measurements can be made over a wide range of operational conditions. Each instrument has its own microprocessor to control and direct the various operations. Table 5 lists the operational and pulse discrete commands for both instruments, which are discussed in detail in reference 1. Both instruments can operate at azimuth angles between  $0^\circ$  and  $180^\circ$ . The nonscanner instrument can operate at fixed elevation-beam positions of  $0^\circ$  (nadir),  $78^\circ$  (solar ports), and  $180^\circ$  (stow or internal calibration position). The scanner instrument has three Earth scan modes (normal, short, and nadir), a stow mode, and a solar calibration (or MAM) scan mode. Table 6 lists the nominal scan elevation-angle positions and views (Earth, space, MAM, and internal calibration source) for each of the 74 radiometric measurements in a 4-second scan cycle for the normal Earth scan mode, the short scan mode, and the solar calibration or MAM scan mode. The actual angles may differ from these nominal values depending on the performance of the elevation drive.

The ERBE nonscanner instrument output consists of a complete cycle of radiometric and housekeeping measurements every 16 seconds, and the scanner instrument output consists of four 4-second scan cycles of radiometric and housekeeping measurements during the same 16-second period. A list of the data output by both instruments in a 16-second record is shown in table 7, which also indicates the specific instrument data that are included on the RAT and PAT archival products and the units of each data quantity. Note that the RAT contains all the data output by each instrument and that most of the housekeeping measurements have been converted to engineering units. The PAT, on the other hand, contains the converted values of the radiometric measurements and none of the housekeeping data.

## Coordinate Systems and In-Flight Geometry

The fixed and rotating coordinate systems of the nonscanner and scanner instruments are shown in figures 2(a) and 2(b), respectively. The focal point of the detector of interest defines the origin of the coordinate system. The fixed axes of the nonscanner instrument are noted by the subscript *NS*, and the fixed axes of the scanner instrument are noted by the subscript *SC*. The axes of the rotating azimuth beam are noted by the subscript  $\alpha$ , and the axes of the rotating elevation beam are noted by the subscript  $\phi$ .

The azimuth beam of each instrument has a single degree of freedom relative to the fixed axes, thus permitting the entire head assembly (the structure below the pedestal) to rotate about the fixed X-axis. The rotating  $\alpha$ -axes are aligned with the fixed axes when the rotation angle  $\alpha$  is zero. A positive rotation (clockwise) about the fixed X-axis of either instrument produces a positive azimuth angle  $\alpha$  that is measured from the fixed Z-axis. The azimuth beam of either instrument can rotate between angles of  $0^\circ$  and  $180^\circ$ .

The nonscanner elevation beam can rotate in one degree of freedom relative to the azimuth beam, thus permitting the optical axes of the four Earth-viewing detectors to rotate about the  $Y_\alpha$ -axis. Figure 2(a) shows the alignment of the rotating  $\phi$ -axes with the fixed axes and rotating  $\alpha$ -axes of the nonscanner instrument when the elevation angle  $\phi$  is zero. A negative (counterclockwise) rotation about the rotating  $Y_\alpha$ -axis of the nonscanner instrument produces a positive elevation angle  $\phi$  that is measured from the fixed X-axis. The elevation beam operates at only three elevation positions:  $0^\circ$  (nadir),  $78^\circ$  (solar ports), and  $180^\circ$  (internal calibration source, or stow). The optical axis of the solar monitor is fixed on the azimuth beam at an elevation angle of  $78^\circ$ , which is  $12^\circ$  down from the spacecraft horizon.

Like its counterpart on the nonscanner instrument, the elevation or scanner beam of the scanner instrument shown in figure 2(b) can rotate in one degree of freedom relative to the azimuth beam, thus permitting the optical axes of the three Earth-viewing detectors to rotate about the  $Y_\alpha$ -axis. A positive rotation (clockwise) about the rotating  $Y_\alpha$ -axis produces an increase in scan (elevation) angle  $\phi$  that is measured from the rotating  $Z_\alpha$ -axis. Figure 2(b) shows the alignment of the rotating  $\phi$ -axes when the elevation or scan angle is  $90^\circ$ . The  $Z_\phi$ -axis is aligned with the optical axes of the Earth-viewing detectors and is, therefore, aligned with the rotating

$Z_\alpha$ -axis when the angle  $\phi$  is  $0^\circ$ . The scanner elevation beam can rotate between angles of  $14^\circ$  (the space-look position for Earth scan modes) and  $233^\circ$  (the position of MAM). The optical axis of the MAM assembly is fixed on the azimuth beam at an elevation angle of  $11^\circ$  down from the  $Y_{SC}Z_{SC}$ -plane.

Figure 3 illustrates how the fixed axes of the ERBE instruments are aligned with the axes of the spacecraft on which they are mounted. The ERBS spacecraft axes have the subscript notation  $E$  (ERBS), and the NOAA spacecraft axes have the subscript notation  $N$  (NOAA). NOAA 9 and NOAA 10 have the same coordinate system. As in figure 2,  $NS$  refers to the *nonscanner instrument* and  $SC$  refers to the *scanner instrument*. Note that only the orientation of these axes systems relative to each other is important, not the locations of their origins. The positive  $Y$ -axis of the ERBS spacecraft is in the direction in which the solar panels are tilted, and the positive  $Z$ -axis of both NOAA spacecraft is parallel to the axis of the boom that supports the spacecraft solar panel.

Figure 4 illustrates how the axes of the two types of spacecraft are aligned with their respective in-flight local horizon axes, and on which side of the orbit the Sun is positioned relative to the orbit plane and spacecraft velocity vector. Here,  $V_{LH}$  is the component of the spacecraft velocity vector in the local horizon plane,  $\hat{N}$  is the orbit angular momentum vector, and  $X_{LH}$  and  $Z_{LH}$  indicate the direction of local nadir for NOAA and ERBS spacecraft, respectively. Shown also in figure 4 is the position of the instrument azimuth beam ( $\alpha$ -axes system) relative to the local horizon system when the rotating azimuth axes are aligned with the fixed axes.

The attitude or orientation angles of a spacecraft, which are provided in the telemetry data, are defined relative to the specific local horizon system in which the spacecraft operates. The spacecraft attitude angles and the azimuth and elevation angles of the instruments are used to compute the pointing vectors of the primary radiometric detectors, as well as those of the solar monitor and MAM, in the appropriate local horizon system of figure 4. The pointing vectors for the ERBS spacecraft of figure 4(a) are then transformed into the NOAA local horizon system of figure 4(b) so that all pointing vectors will have a common local horizon system. The pointing vectors in this common axes system are used to compute the Earth locations of the primary radiometric measurements. A detailed description of how the pointing vectors and the Earth locations of the scanner detector measurements are computed is given in reference 5.

When the ERBS spacecraft is flying  $X$ -axis forward (i.e., the positive  $X$ -axis is in the direction of the positive spacecraft velocity vector), the Sun is normally on the right side of the ERBS orbit (looking downrange or down the velocity vector). When the Sun crosses the ERBS orbit plane from right to left, the spacecraft is yawed (i.e., rotated about the nadir or  $Z_E$ -axis)  $180^\circ$  to reposition the solar panels so that they tilt to the left side of the orbit. About 36 days later when the Sun again crosses the orbit plane, this time from left to right, the spacecraft is again rotated  $180^\circ$ . The NOAA spacecraft are in approximate Sun-synchronous orbits, and the spacecraft always fly with their  $Y$ -axes in the direction of the negative velocity vector with the Sun on the left side of the orbit.

Additional details of the general Earth-Sun-spacecraft geometry are given in appendix B of reference 1, which describes the local horizon coordinate system in which the Sun's position is normally calculated. The azimuth and elevation angles of the Sun in this system can be directly related to the Sun angles in the instrument axes systems of the ERBE non-scanner and scanner instruments described earlier in this section.

## General Discussion and Analysis of Mission and Instrument Operations

This section presents a discussion of the instruments aboard each spacecraft separately, beginning with a brief description of operational responsibilities and procedures. An overview of calibrations and normal Earth-viewing operations is then presented; this is followed by discussions of the effects of the solar environment on instrument operations, of operational anomalies, and of instrument housekeeping measurements.

### ERBS Spacecraft

The ERBS spacecraft and the ERBE instruments aboard it are controlled and operated by NASA at its Payload Operations and Control Center (POCC) at the Goddard Space Flight Center, Greenbelt, Maryland. LaRC ERBE personnel are responsible for planning changes in the instrument operation, and the plans are coordinated with POCC personnel, who implement the changes. The operational status of the instruments and housekeeping measurements is monitored directly at the ERBS POCC during real-time passes. A telecommunication link between LaRC and the ERBS spacecraft via the POCC has permitted LaRC personnel to do limited real-time monitoring of the ERBE instrument operations and housekeeping data. This communication link has

proven particularly valuable when the resolution of spacecraft or instrument problems has required participation by LaRC personnel.

***In-flight operations.*** Table 8 lists the operational modes in which the instruments normally operated between February 1987 and February 1990 and shows the temperature values for those commands that require input data. Changes from the normal operational modes were required to obtain calibration data. Tables 9 and 10 list the operational mode commands executed by the nonscanner and scanner instruments, respectively, aboard the ERBS spacecraft during the period of this paper. (Tables 11 and 12 list the same information for the instruments on the NOAA 10 spacecraft.) The tables list each mode command executed, its hexadecimal command code, and the date and time of command execution (in hours, minutes, and seconds of universal time (UT) and in minutes of universal day). Spacecraft yaw maneuvers of the ERBS spacecraft are also noted in tables 9 and 10.

The nonscanner instrument on ERBS operated at an azimuth-beam position of  $0^\circ$  and an elevation-beam position of  $0^\circ$  (nadir). In this configuration the solar monitor assembly was normally on the Sun's side of the orbit. The scanner instrument operated at an azimuth angle of  $180^\circ$  and in the normal Earth scan mode. In this operational configuration, the detectors were positioned to view space on the dark side of the orbit at the beginning of each scan cycle. Appendix C in reference 1 presents a discussion of the normal Earth scan mode of operation.

All heaters and calibration sources on the instrument that are controlled by mode commands remained off during normal operations, except for the nonscanner detector heaters and the solar port heaters. Table 8 lists the normal status or positions of the power relays for both instruments (On = Closed; Off = Open). The position of these relays, except for those marked with asterisks, are controlled by pulse discrete commands. (See table 5.) The instrument power and either the pulse A or pulse B switches must be on for an instrument to respond to mode commands and produce output data. The nonscanner calibration power must be on for the detector calibration mode command to activate the calibration heaters, and thus the detector calibration power switch remained on at all times. On the other hand, the scanner blackbody calibration heater is controlled directly by a pulse discrete command. Therefore, the pulse discrete commands of the scanner heater were inserted into the scanner internal calibration sequences to turn the scanner

blackbody heaters on and off at the times required. (See table A1 in ref. 1.)

Power to the azimuth and elevation motors is controlled through the motor power bus relay by the azimuth and elevation mode commands, respectively. The azimuth motor power for either instrument is turned on when a new azimuth mode command is executed and is turned off when the rotation is completed. The elevation motor power for an instrument is turned on and off in the same way by elevation mode commands. The elevation motor power of the scanner instrument on the ERBS spacecraft remained on at all times. The azimuth motor power for both instruments and the elevation motor power for the nonscanner instrument are turned on when the azimuth and elevation mode commands are executed.

Most of the in-flight instrument operational mode commands were associated with instrument calibrations. (See tables 9–12.) Internal calibrations of both instruments and solar calibrations of the nonscanner instrument normally were all performed at approximately the same time every other Wednesday. Appendix A in reference 1 describes the preprogrammed, or automated, instrument calibration sequences used for the instruments on the ERBS spacecraft and how these sequences have been combined with additional commands to facilitate in-flight calibrations. The nonscanner internal calibration sequence was modified in April 1988, and table 13 shows the modified sequence. Solar calibrations of the scanner instrument were discontinued in October 1985 because of problems experienced on October 19 and 20, 1985, in conjunction with the pitch maneuver. (See ref. 1.)

Table 14(a) lists some important characteristics of the ERBS spacecraft orbit on January 1, 1985–1990. Table 14(b) lists the orbit characteristics of the NOAA 10 spacecraft. Although the ERBS spacecraft orbit is slightly elliptical, the resulting differences in minimum and maximum altitudes have not impacted the ERBE instrument data collection or mission operations. The rotation rate of  $-3.95^\circ$  per day of the right ascension of the ascending node of the ERBS orbit produces a range of beta angles ( $\beta$ ) during the year from  $10^\circ$  to  $170^\circ$ . (See fig. 5(a).) This variation in  $\beta$  produces a wide range of heating conditions for the instruments. The effects of  $\beta$  on the ERBS mission operations and on the instrument housekeeping temperatures are discussed later in the section entitled “Monitoring and Analysis of Instrument Housekeeping Measurements.” A more general description

of how  $\beta$  affects Sun angles at the spacecraft and on the Earth is given in appendix B in reference 1.

When the  $\beta$  angle of the ERBS orbit is between  $10^\circ$  and  $90^\circ$ , the Sun is on the left side of the orbit, looking downrange. Figure 4(a), (where the  $X$ -axis is backward) presents an illustration of the geometry for this case. The spacecraft positive  $X$ -axis points uprange along the negative velocity vector, and the scanner instrument elevation beam rotates from right to left as one looks down the velocity vector from behind the spacecraft. When  $\beta$  is between  $90^\circ$  and  $170^\circ$ , the Sun is on the right side of the orbit ( $X$ -axis forward), as illustrated in figure 4(a). In this case, the spacecraft positive  $X$ -axis is pointed downrange and the elevation beam scans from left to right. When  $\beta$  approaches  $90^\circ$  from either direction, the ERBS spacecraft is yawed (rotated about the  $Z'$ , or nadir, axis)  $180^\circ$  to reposition the spacecraft solar panels to tilt to the Sun's side of the orbit. This occurs about every 36 days. The dates and times of the  $180^\circ$  yaw turns are included in tables 9 and 10. During these turns both instruments continued to operate in their normal modes. However, data acquired during the yaw turns are not included in the science data products because the locations of the measurements on the Earth are questionable. Annual and monthly  $\beta$  plots for the ERBS spacecraft orbit are shown in figures 5 and 6, respectively. Figures 7 and 8 show the annual and monthly  $\beta$  angles for the NOAA 10 spacecraft orbit.

When the ERBS spacecraft operates in full-Sun conditions, the scanner instrument operates at an azimuth position of  $145^\circ$  to prevent the detectors from directly scanning the Sun. Full-Sun orbits occur in June and August, when the  $\beta$  angle is less than  $24^\circ$ , and in February and December, when the  $\beta$  angle is greater than  $156^\circ$ ; at these times the ERBS spacecraft is in continuous sunlight. Regularly scheduled calibrations are not performed during the full-Sun periods; instead, a set of calibrations are performed immediately prior to and after each full-Sun period. Because the Sun terminator is continuously in the limb-to-limb view of the Earth during these periods, the nonscanner WFOV detectors do not view any regions of the Earth that are totally illuminated or totally dark. The azimuth-beam rotations that occurred before and after full-Sun conditions were the only scanner instrument azimuth-beam rotations that were performed from February 1987 through February 1990. These rotations were normal except for the rotation attempted on June 2, 1988, when the data stream reported an azimuth position of  $145^\circ$ , but detailed analysis showed that the instrument was

actually at  $180^\circ$ . This was corrected by an azimuth rotation to  $145^\circ$  on June 3, 1988.

The elevation beam of the scanner instrument on the ERBS spacecraft continued to exhibit some effects of the rotational anomaly that started in 1985. However, no actual hang-ups (malfunctions) of the beam like those that occurred during May 1985 were observed. (See ref. 1.) An analysis of the scanner elevation-beam anomaly was reported in reference 6.

Figure 9 shows values of the mean, minimum, and maximum scan angles of the ERBS scanner instrument for each day during the period of this paper. Similar information for the NOAA 10 scanner instrument is shown in figure 10. Unedited average values are based on all scan angles, and edited averages include only angles that passed rigorous range and rate-of-change edit tests. The average expected scan angle in the normal Earth scan mode is about  $87.9^\circ$  when scan beam rotations are completely uniform. Figure 9 shows that both the edited and unedited mean scan angles varied little during the period covered by this paper. Most of the time the edited and unedited values of the mean scan angle were about the same, an indication that no systematic deviations from the scan pattern occurred at either the space look or the internal calibration position.

An effect of irregular elevation-beam rotation was a misalignment of the radiometric detectors with the internal calibration sources at a scan angle of  $190^\circ$ . This misalignment resulted in a nonuniform response of the shortwave detectors to the output of the internal calibration sources during internal calibrations. The effect was most pronounced at the first of the four internal calibration positions. The angular misalignments of the detectors at the internal calibration sources were usually not large enough to be rejected by the editing process and, therefore, did not significantly affect the mean scan angles of figure 9. However, the misalignments still invalidated many of the shortwave measurements made during internal calibrations for most of the period of this paper.

At 11:55 UT on February 28, 1990, the scanner elevation-beam motor stopped, and the scanner instrument onboard the ERBS spacecraft ceased operating. The problem occurred as the instrument was about to begin an automated internal calibration sequence. The calibration command was not executed, and the command echo word went to zero. All instrument housekeeping and radiometric data appeared to be normal. Several attempts were made to restore the instrument to operational status, but without success. Numerous tests were performed in an

attempt to determine the cause of the scanner instrument failure, but results were inconclusive.

***Monitoring and analysis of instrument housekeeping measurements.*** Instrument housekeeping measurements are monitored during real-time communication contacts with the spacecraft to ensure that the instruments are functioning normally. Because the ERBS spacecraft orbit produces a wide range of  $\beta$  angles, which cause the ERBE instruments onboard to experience large variations in heating and require changes in normal operational modes, the monitoring of housekeeping measurements of these instruments is particularly important. In the real-time monitoring procedure, the housekeeping measurements are checked against both yellow limits, which indicate that an instrument may be approaching a critical condition, and red limits, which indicate that the instrument is at risk of being damaged.

An analysis of instrument housekeeping measurements has also been performed during the ERBE science data processing. This processing produces a complete history of the actual measured values of all housekeeping temperatures and voltages, and it accumulates the minimum, mean, and maximum values of all housekeeping measurements for each archived day. The processing includes testing the value of every housekeeping measurement to determine if the value is within specified limits and if its rate of change is less than a specified value. Values used to test the magnitudes and rate changes of selected housekeeping measurements of the instruments on the ERBS spacecraft are listed in table 15. These edit limits are significantly more restrictive than those used in the real-time monitoring process mentioned above. The more restrictive limits are used because the output of the radiometric detectors may be affected by temperature or voltage changes before the health of the instrument is actually threatened. The processing procedures identify (flag) the data values that exceed the input limits.

Figures 11 through 20 are plots of the daily minimum, mean, and maximum values of key housekeeping measurements for the ERBE instruments on the ERBS spacecraft for each day during the analysis period. The nonscanner heat sink and aperture temperatures and the scanner detector temperatures are computed to a higher resolution than the plotted values, and this difference accounts for the appearance of the plotted values of these parameters. The computed resolutions of the nonscanner heat sink and aperture temperatures are 0.013°C and 0.010°C, respectively, and the computed resolution of the scanner detector temperature is 0.001°C. Differences in the minimum, mean, and maximum values of a given

housekeeping measurement on a given day were primarily due to in-orbit variations in Sun angles.

Day-to-day changes in values of the housekeeping measurements are primarily due to changes in the  $\beta$  angle. (A discussion of  $\beta$  and its effect on the operational environment is given in appendix B of ref. 1.) In general, housekeeping temperatures increased as  $\beta$  approached minimum and maximum extremes. When  $\beta$  is greater than 156° or less than 24°, the spacecraft is in continuous sunlight. At the specific  $\beta$  angle of 156°, or at its supplement, 24°, the Sun is at the Earth's limb as viewed from the spacecraft and the spacecraft will experience maximum heating conditions. Two separate geometries occur for these full-Sun conditions for the ERBS spacecraft. During February and August,  $\beta$  stays near 156° (or 24°). During the full-Sun conditions of June and December,  $\beta$  passes quickly through 156° (or 24°), both before and after attaining extreme values of 170° (or 10°). During these periods, the heating effects of the orbit result in a distinct dog-ear (double maxima) appearance in the housekeeping plots. These heating effects are seen both in the nonscanner instrument (see, for example, fig. 13 for the field-of-view limiter temperatures) and in the scanner instrument (see, for example, fig. 19 for the blackbody temperatures).

The 1987 ERBS plots show the effects of the ERBS tumble in July when spacecraft attitude control was temporarily lost. This event is discussed in detail in the section entitled "Discussion and Analysis of Operations Month by Month" and in reference 7. Most noncontrolled temperatures on both the nonscanner and scanner instruments show a downward spike on July 2 that was the result of the instruments being powered off during the tumble.

The heat sink, aperture, and field-of-view limiter temperatures of the nonscanner instrument all affect the radiometric output of the Earth-viewing detectors. The heat sink temperatures of the Earth-viewing detectors are tightly controlled, and the aperture temperatures of the Earth-viewing detectors are closely coupled to the heat sink temperatures; therefore, the effects of these temperatures are not modeled in the radiometric data-conversion algorithms. The field-of-view limiter temperatures of the nonscanner instrument are not controlled, but their values are accurately measured and are included in the radiometric data-conversion algorithms. When values of any of these measurements are flagged because they fail the edit limit tests, the corresponding radiometric data are rejected from further science data processing.



Because the nonscanner instrument controls the heat sink temperatures, they varied only about  $0.1^{\circ}\text{C}$  during the time period of this paper (fig. 11). Aperture temperatures (fig. 12) varied by less than  $0.6^{\circ}\text{C}$ , with peaks occurring during periods of minimum or maximum  $\beta$  angles. Because the field-of-view limiter temperatures (fig. 13) are not controlled, they show variations in temperature that are sensitive to  $\beta$ . The maximum values occur when  $\beta$  is approximately  $24^{\circ}$  or  $156^{\circ}$ .

Temperatures of the solar monitor heat sink and apertures (fig. 14) are not controlled, and their values are more variable than those of the Earth-viewing detectors. Therefore, the effects of the variations of the solar monitor temperatures are modeled in the radiometric data-conversion algorithms during processing of the data acquired during solar calibrations. However, because of the extreme heating conditions, calibrations are not performed during these full-Sun periods. Also, during the February, August, and December full-Sun periods, all solar monitor heat sink and aperture temperatures failed telemetry edit limits. This is seen in the plots in figure 14 as steep-sided troughs because the edited measurements register zero when all values are flagged as bad.

The nonscanner blackbodies are used primarily during internal calibrations of the instruments, and variations in their temperatures do not affect the output of the radiometric detectors during normal operation (fig. 15). The spikes seen on the blackbody plots indicate calibrations made when the blackbodies were turned on. These spikes first appeared on March 27, 1987, when higher blackbody set point temperatures were established. The nonscanner electronic slice 3 and power converter temperatures (fig. 16) are used primarily in the real-time data monitoring procedures. The power converter temperature is classified as a passive measurement because it is available in the telemetry data stream even if the ERBE instruments are powered off. These housekeeping temperatures are very sensitive to variations in  $\beta$ , and like the FOV limiter temperatures, their maximum values on ERBS correlate with the periods of  $\beta$  that produce full-Sun conditions. Both values show upward spikes that correlate with calibration days.

The temperatures of the scanner detectors (fig. 17) varied by  $0.4^{\circ}\text{C}$  during the time period of this paper, and the largest variations are correlated with periods of minimum and maximum  $\beta$ . The effects of the detector temperatures are modeled in the radiometric data-conversion algorithms of the scanner instruments. The digital-to-analog converter (DAC) voltages all drifted gradually (fig. 18). However, the

gradual changes in the values of these output voltages have not affected the output of the scanner radiometric detectors, and thus edit-limit values are not shown in table 15. The instantaneous rate of change in the values of the DAC voltages affects the output of the detectors, and the effects of the rate changes are modeled in the radiometric data-conversion algorithms.

Values of the temperatures of the blackbodies and the two passive analog temperatures (box beam and electronic slice 3) from the scanner instrument (figs. 19 and 20) are included for comparison with the corresponding measurements on the nonscanner instrument (figs. 15 and 16). These temperatures exhibit behavior similar to that of the nonscanner instrument during corresponding time periods, and they correlate with variations in the  $\beta$  angle of the ERBS orbit. The sharp upward spikes in the blackbody temperatures occur when the blackbody heaters are turned on during internal calibrations.

### NOAA 10 Spacecraft

The NOAA 10 spacecraft and the ERBE instruments aboard it are controlled and operated by the NOAA Satellite Operations and Control Center (SOCC) located in Suitland, Maryland. The operational status of the instruments and housekeeping measurements is monitored during real-time contacts with the spacecraft by SOCC personnel. A telecommunication link between LaRC and the NOAA 10 spacecraft via the SOCC has permitted LaRC personnel to do limited real-time monitoring of the ERBE instrument operations and housekeeping data. This communication link has proved particularly helpful when the resolution of spacecraft or instrument problems has required participation by LaRC personnel.

***In-flight operations.*** The ERBE instruments aboard the NOAA 10 spacecraft made Earth-viewing radiation measurements continuously except during calibrations. Tables 11 and 12 list the operational mode commands executed by the ERBE nonscanner and scanner instruments, respectively, on the NOAA 10 spacecraft from February 1987 through May 1989.

The NOAA 10 orbit is nearly Sun-synchronous with a mean local time of about 7:30 am at the ascending node. (See table 14.) This orbit results in relatively low  $\beta$  angles (see figs. 7 and 8) and causes the spacecraft to operate in full Sun ( $\beta < 27^{\circ}$ ) during much of the year.

Table 8 lists the operational modes in which the ERBE instruments aboard the NOAA 10 spacecraft

normally operated between February 1987 and May 1989 and shows the data values used for the mode commands that required input data. All heaters and calibration sources controlled by mode commands remained off during normal operation, except for the nonscanner detector heaters and solar port heaters. Table 8 lists the normal status of the power relays for both instruments on the NOAA 10 spacecraft, which are the same as those for the instruments on the ERBS spacecraft.

The nonscanner instrument operated at an azimuth angle of  $180^\circ$  and in the normal Earth-viewing elevation mode except during periods of calibration. The scanner instrument operated in the normal Earth scan mode and at an azimuth-beam position of  $0^\circ$  from about mid-April to about the end of August each year, and at  $35^\circ$  during the rest of the year. The period of operation at the  $35^\circ$  azimuth position included all periods of full-Sun orbits, and it was implemented to prevent the scanner detectors from viewing the Sun during those periods. Like the scanner instrument detectors on the ERBS spacecraft, those on the NOAA 10 spacecraft viewed space on the dark side of the orbit and scanned the Earth from dark to sunlit regions.

Most in-flight instrument operational mode commands were associated with instrument calibrations. (See tables 11 and 12.) Appendix A of reference 1 describes the preprogrammed, or automated, instrument calibration sequences and how these sequences have been combined with auxiliary commands to facilitate in-flight calibrations. During the operational period of NOAA 10 covered by this paper, a set of instrument calibrations was normally performed on alternate Wednesdays. This set of calibrations included internal and solar calibrations of the nonscanner instrument and internal calibrations of the scanner instrument. The nonscanner internal calibration sequence was modified in April 1988, as shown in table 13. No solar calibrations of the scanner instrument were attempted after the azimuth beam anomaly on November 12, 1986. (See ref. 2.)

During the first several months of 1987, the scanner elevation beam of the NOAA 10 experienced the most severe rotational problems observed on any of the three ERBE scanners. Figure 10 shows values for the minimum, maximum, and mean scan angles for each day during the period of this paper. The expected average scan angle in the normal Earth scan mode is about  $87.9^\circ$  when scan beam rotations are completely uniform. Figure 10(a) shows that for February through May 1987, a large separation occurred between the edited and unedited scan angle means, with the edited mean generally much lower

than the unedited mean. This was caused by the elevation beam moving erratically, often stuck at some scan angle, and moving only slightly forward or backward during the normal 4-second scan profile. In these cases, whole scans may have been flagged as bad, with many consecutive bad scans. At other times, the scan motion anomaly was seen as a lag of the elevation beam relative to the expected scan profile, usually resulting in edit flags being set at the start of the Earth scan locations and at the internal source. The misalignment was often so bad at the internal source that most of the internal calibration data collected during this period were unusable. New science data processing software was developed to process and edit the data during this period of severe rotation problems. This software separated bad and good elevation-beam position data during periods of elevation-beam problems and correctly computed pointing vectors of the detectors.

From June 1987 through mid-December 1987, a notable separation occurred between the edited and unedited scan angle means, though this separation was smaller than those typically seen earlier in the year. Also, the unedited mean was less variable, usually staying in a range between  $87^\circ$  and  $87.5^\circ$ . From mid-December 1987 until the scanner failed in May 1989, the edited and unedited scan angle means were about the same value on most days, usually in a range between  $86^\circ$  and  $87.5^\circ$ . As was observed during the severe rotation problems in early 1987, the detectors were often not properly aligned with the internal calibration sources at scan positions 71 through 74. This misalignment generally was not severe enough to fail telemetry edit checks, although it did occasionally affect the usefulness of the shortwave measurements made during internal calibrations.

At 17:03 UT on May 22, 1989, all values of the scanner-instrument analog data went to zero. The digital B (DIG B) data indicated that the motor power of the scanner elevation beam remained on. Both housekeeping and radiometric data appear to be valid, and the instrument responses to several of the operational mode commands are normal. However, the instrument will not operate in any operational scan mode. The instrument continues to abnormally execute the scanner internal calibration sequence. A detailed study of the NOAA 10 scanner failure (see ref. 8) concluded that the malfunction resulted from a failure in the internal address decoding circuitry in one of the ROM chips. No method exists for reprogramming the processor, and no valid data can be obtained from the NOAA 10 scanner instrument.

**Monitoring and analysis of instrument housekeeping measurements.** Instrument housekeeping measurements are monitored during real-time communication contacts with the spacecraft to ensure that the instruments are functioning normally. In the real-time monitoring procedure, the housekeeping measurements are checked against both yellow limits, which indicate that an instrument may be approaching a critical condition, and red limits, which indicate that the instrument is at risk of being damaged.

Table 15 shows the values used in the science data processing at LaRC to test the magnitudes and rates of change of selected housekeeping measurements of the instruments on the NOAA 10 spacecraft. As was the case with ERBS, these limits are much more restrictive than those used in real-time monitoring.

Figures 21–30 are plots of the daily minimum, mean, and maximum values of key housekeeping measurements for the ERBE instruments on the NOAA 10 spacecraft for each day from February 1987 through May 1989. Differences in the minimum and maximum values of the housekeeping measurements on a given day are about the same as those for the instruments on the ERBS spacecraft, and they are primarily due to in-orbit variations in Sun angles. Day-to-day variations in the values of the measurements are not nearly as large as those for the instruments on the ERBS spacecraft because of the smaller variation in the values of  $\beta$  (figs. 6 and 8); however, all uncontrolled instrument temperatures show large spikes that correspond to the period of increased heating during full-Sun conditions. (See, for example, fig. 23 for the field-of-view limiter temperatures on the nonscanner instrument and fig. 29 for the blackbody temperatures on the scanner instrument.)

The nonscanner heat sink temperatures, which are controlled by the instrument, varied by only about  $0.1^{\circ}\text{C}$  (fig. 21). Aperture temperatures varied by less than  $0.4^{\circ}\text{C}$ , with peaks occurring during periods of minimum or maximum  $\beta$  angles (fig. 22). Because the field-of-view limiter temperatures are not controlled, they show variations in temperatures that are sensitive to  $\beta$  (fig. 23). The downward spikes seen in the field-of-view limiter temperature figures are associated with calibrations.

The solar monitor heat sink and aperture temperatures (fig. 24) are not controlled, and their values respond to the changing  $\beta$  angle. The nonscanner blackbody temperatures (fig. 25) also show a response to  $\beta$ . In the plot for February 1988 to January 1989 (fig. 25(b)), the visible sign of the bi-weekly calibration changes from a small downward

spike in the edited minimum temperature to a large upward spike in the edited maximum temperature. This is a result of changes made to the blackbody set point temperatures in April 1988. The nonscanner electronic slice 3 and power converter temperatures (fig. 26) also show temperature increases that correspond to  $\beta$ -related heating. Both values show upward spikes that correlate with calibration days.

The temperatures of the scanner detectors (which are controlled) varied by no more than  $0.2^{\circ}\text{C}$  (fig. 27), and the digital-to-analog converter (DAC) voltages all drifted gradually during the time period of this paper (fig. 28). A large perturbation is visible in the LW DAC voltage that correlates with the time of scanner elevation-beam hang-ups. A much smaller perturbation appears to be present in the total DAC voltage during the same time period.

Values of the temperatures of the blackbodies and the two passive analog temperatures from the scanner instrument (figs. 29 and 30) are included for comparison with the corresponding measurements on the nonscanner instrument (figs. 25 and 26). The blackbody temperatures exhibit behavior similar to that for corresponding time periods of the nonscanner instrument and correlate with variations in the  $\beta$  angle of the NOAA 10 orbit. The sharp upward spikes in the blackbody temperatures occur when the blackbody heaters are turned on during internal calibrations. The scanner box beam temperature shows variations that roughly correlate with  $\beta$  angle changes. A perturbation is visible in the plot for February 1987 through January 1988 that correlates with the time period of scanner elevation-beam hang-ups. The scanner electronic slice 3 temperature increases during periods of irregular elevation-beam rotation (figs. 10(a), 10(b), 30(a), and 30(b)).

## Discussion and Analysis of Operations Month by Month

### Introduction

This section discusses spacecraft and instrument operations for the ERBS and NOAA 10 spacecraft separately for each month, beginning with February 1987 and continuing through February 1990 for ERBS, and through May 1989 for NOAA 10. During most of this time the instruments were in their normal operating modes. The discussion addresses the percentage of data archived (see tables 1–3),  $\beta$  angles (see figs. 5–8), spacecraft maneuvers (see tables 1, 7, and 8), instrument calibrations (see tables 1 and 9–13), and other instrument operations (see tables 1 and 9–12).

Tables 1–3 summarize spacecraft and instrument operations for each spacecraft for each month, and they give the percentage of data archived to both the RAT and PAT products. The percentage of data archived is actually the percentage of 16-second records archived out of a possible total of 5400 records per day. An archived record can contain fill data and/or poor quality data that are flagged as bad. However, the percentage of data archived is usually a good approximation of the percentage of usable data, particularly for data from the ERBS spacecraft.

Differences between the RAT and PAT data percentages arise because of data quality problems and because of constraints imposed on the data archived to the PAT. Data quality problems are rarely encountered in the ERBS data, and this is reflected in the small differences, generally less than 1 percent, between the percentages of data archived to the ERBS RAT and PAT products. On calibration days, the differences are generally on the order of 3 percent because some data collected during calibrations do not meet the constraints discussed below. On days when spacecraft yaw maneuvers are performed on the ERBS spacecraft, differences are generally greater than 3 percent, again because some data collected during these maneuvers do not meet the constraints discussed below. Data recovery was nearly always greater from the ERBS spacecraft than from the NOAA spacecraft. The losses in data recovery, as well as the larger differences between the NOAA 10 RAT and PAT data percentages, occur because of less efficient data processing procedures at NOAA. These less efficient procedures reflect the fact that the NOAA spacecraft are operational weather satellites, whereas ERBS is dedicated to the ERBE and SAGE II instruments.

The following constraints in chart A must be met if data archived to the RAT are to be included on the PAT:

Chart A

Nonscanner	Scanner
Instrument power on	Instrument power on
Nadir (Earth-viewing) elevation	Azimuth motor power off
Not in solar calibration mode	Not in solar calibration mode
Not in internal calibration mode	In Earth-viewing scan mode

In addition, certain quality indicator flags for both the nonscanner and scanner instrument data must be set if the data are to be included on the PAT.

These constraints ensure that every record written to the PAT contains at least one good scanner or nonscanner measurement. If the scanner instrument is in stow for an entire day, no data are archived to the PAT for that day.

All the operational mode commands executed by the nonscanner and scanner instruments on the ERBS spacecraft from February 1987 through February 1990 are listed in tables 9 and 10. Tables 11 and 12 list all operational mode commands executed by the nonscanner and scanner instruments on the NOAA 10 spacecraft from February 1987 through May 1989. These tables are based on the command echo word from the telemetry data processing, which is an echo of the last command executed by the instrument. Occasionally, a data dropout will obscure a command that was actually received and executed by the instrument; thus the commands listed in tables 9–12 may not exactly reflect instrument operations. Such discrepancies will be noted in the text and tables. Figures 5–8 show the  $\beta$  angles for the ERBS and NOAA 10 orbits for each year and each month covered in this discussion. Figures 9 and 10 show the daily mean scan angle for the ERBS and NOAA 10 scanner instruments, respectively, and figures 11–30 show the responses of instrument house-keeping temperatures and voltages to the operations discussed in this section, as well as the effects of changes in Earth-Sun-spacecraft geometry.

Medium field-of-view (MFOV) data from the nonscanner instrument aboard the NOAA 10 spacecraft were not included in the PAT product because analyses revealed significant discrepancies between the NOAA 10 nonscanner MFOV data and the scanner data. At present, these data are set to a default value and the associated flags indicate bad data.

### ERBS Spacecraft Operations

**ERBS spacecraft—February 1987.** In February 1987 the percentage of data archived to the RAT was 99.65 and to the PAT was 99.58. (See table 1(a).) The  $\beta$  angle increased from about  $93^\circ$  at the beginning of the month to about  $158^\circ$  on February 20, the maximum for the month, and then it decreased to about  $138^\circ$  by the end of the month. (See figs. 5 and 6.) The high  $\beta$  angle occurring from about February 15 through February 24 resulted in above-normal heating on both the scanner and nonscanner instruments during this period. The spacecraft operated with its X-axis positive for the entire month. Because  $\beta$  never reached  $90^\circ$ , no yaw maneuver was performed in February 1987.

The nonscanner instrument operated in the normal nadir or Earth-viewing elevation mode and

at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. As mentioned above, the nonscanner instrument experienced above-normal heating during the full-Sun period, but instrument health was never endangered. Successful internal and solar calibrations were performed on February 15 and 26, and a successful internal calibration was performed on February 4. A solar calibration attempted on February 4 was unsuccessful because the azimuth beam did not rotate properly to the Sun-look position.

The scanner instrument operated in the normal Earth scan mode during the entire month of February. The azimuth beam operated at  $180^\circ$  during most of the month; however, the azimuth beam operated at  $145^\circ$  from 22:08 UT on February 15 until 14:50 UT on February 25 to prevent the scanner detectors from scanning the Sun as the spacecraft orbit approached full-Sun conditions. Successful internal calibrations were performed on February 4, 15, and 26. No scanner solar calibrations were performed in February. Solar calibrations were discontinued for the ERBS scanner following problems encountered in changing scan modes during the pitch maneuver performed on October 19, 1985. (See ref. 1.)

**ERBS spacecraft—March 1987.** In March 1987 the percentage of data archived to the RAT was 99.95 and to the PAT was 99.78. (See table 1(b).) The  $\beta$  angle decreased from about  $135^\circ$  at the beginning of the month to about  $30^\circ$  at the end of the month. (See figs. 5 and 6.) Although the spacecraft was never in full sunlight for an entire orbit during the month, both instruments showed increased heating toward the end of the month because of the low  $\beta$  angle. The spacecraft was configured with its  $X$ -axis positive until about 16:38 UT on March 11 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth-beam position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on March 4 and 18. New set points for the nonscanner blackbody temperatures were transmitted on March 27. The new set points for both the MFOV and WFOV blackbodies were  $28^\circ\text{C}$  for temperature level 1 and  $31.2^\circ\text{C}$  for temperature level 2.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on March 4 and 18.

**ERBS spacecraft—April 1987.** In April 1987 the percentage of data archived to the RAT was 100 and to the PAT was 99.81. (See table 1(c).) The  $\beta$  angle increased from about  $31^\circ$  at the beginning of the month to about  $127^\circ$  at the end of the month. (See figs. 5 and 6.) Both instruments experienced higher than normal temperatures during the first few days of April because of the low  $\beta$  angle, although the spacecraft was never in full sunlight for an entire orbit. The spacecraft was configured with its  $X$ -axis negative until 14:21 UT on April 17 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on April 1 and 29, and a successful internal calibration was performed on April 15. A solar calibration attempted on April 15 was unsuccessful because the instrument failed to detect the Sun. Two factors contributed to this failure: (1) the instrument was commanded to an incorrect azimuth position; and (2) the solar calibration was attempted at a time when the Sun was not at an elevation of  $78^\circ$  and, therefore, could not be seen through the solar ports.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on April 1, 15, and 29. No scanner solar calibrations were performed.

**ERBS spacecraft—May 1987.** In May 1987 the percentage of data archived to the RAT was 100 and to the PAT was 99.84. (See table 1(d).) The  $\beta$  angle increased from about  $128^\circ$  on May 1 to a maximum of about  $131^\circ$  on May 5, and then it decreased to about  $48^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 14:45 UT on May 21 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on May 13 and 27.

The scanner instrument operated in the normal Earth-scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on May 13 and 27.

**ERBS spacecraft—June 1987.** In June 1987 the percentage of data archived to the RAT was 99.97 and to the PAT was 99.85. (See table 1(e).) The  $\beta$  angle decreased from about  $43^\circ$  on June 1 to  $10^\circ$  on June 11, its lowest value of the year. The  $\beta$  angle then increased to about  $83^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was in near or full-Sun condition from June 5 until June 16, and both the scanner and nonscanner instruments experienced above-normal heating during this period. Since  $\beta$  passes through  $24^\circ$  both before and after reaching  $10^\circ$  on June 11, a dog-ear or double maxima pattern occurs in the temperatures on both instruments. (See, for example, fig. 14 for nonscanner solar monitor heat sink and aperture temperatures and fig. 19 for scanner blackbody temperatures.) Because  $\beta$  never reached  $90^\circ$ , no yaw maneuver was performed in June, and the spacecraft operated with its  $X$ -axis negative for the entire month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on June 3, 18, and 24. Some housekeeping temperatures exceeded their normal values during the full-Sun period, but the health of the instrument was not threatened. Maximum temperatures were seen from June 6 through 9 and again from June 14 through 17.

The scanner instrument operated in the normal Earth-scan mode for the entire month. The azimuth beam operated at  $180^\circ$  except for the period from 21:25 UT on June 3 to 18:15 UT on June 17 when it operated at  $145^\circ$  to prevent the scanner detectors from scanning the Sun. Some scanner temperatures were higher than normal during the full-Sun period, with maximums from June 6 through 9 and June 14 through 17. Successful internal calibrations were performed on June 3, 18, and 24.

**ERBS spacecraft—July 1987.** Because of problems caused by an aborted yaw maneuver on July 2, 1987, the data for July 2 and 3 were not archived. Excluding these two days, the percentage of data archived to the RAT was 100 and to the PAT was 99.90. (See table 1(f).)

The  $\beta$  angle increased from about  $87^\circ$  at the beginning of the month to a maximum of about  $126^\circ$  on July 17, and then it decreased to about  $95^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 15:16 UT on July 2. At this time a regularly scheduled yaw maneuver was attempted with the  $X$ -gyro turned off to test

spacecraft behavior in the event of an  $X$ -gyro failure. During this yaw maneuver a problem developed with spacecraft attitude control, and the spacecraft went into a tumble. At about 22:00 UT both the scanner and nonscanner instruments were put into stow and powered down, and the standby heaters for both instruments were turned on. Complete control of the spacecraft attitude was regained at about 8:00 UT on July 3 with the spacecraft configured with its  $X$ -axis negative. At about 8:10 UT on July 3 the ERBE instruments were powered on, and at 12:04 UT on that day the scanner pulse B was powered on. At 15:30 UT a successful yaw maneuver was performed, and the spacecraft operated with its  $X$ -axis positive until July 31. At 14:44 UT on July 31 a  $180^\circ$  yaw maneuver was performed, and the spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The yaw-turn problem is discussed in detail in reference 7. Temperatures on both instruments dropped markedly during the period that the instruments were off, but all temperatures and voltages returned to normal values within a few hours after the instruments were powered on. The nonscanner heat sink temperatures and the scanner detector temperatures, which are controlled temperatures critical to understanding the radiometric data, were behaving normally within a few hours.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month, except during calibrations, and during the period from 21:53 UT on July 2 until 17:19 UT on July 3 when the instrument was in stow because of the yaw-turn anomaly. Successful internal and solar calibrations were performed on July 8 and 22. Additional internal calibrations were successfully performed on July 9 and 10 to provide data for post-yaw-maneuver analysis. The flags that mark the data records during a nonscanner calibration were not set correctly on the RAT for July 8. On July 7 the nonscanner blackbody set point temperatures were reset to  $28^\circ\text{C}$  for both the MFOV and WFOV blackbodies at level 1, and to  $31.2^\circ\text{C}$  for both blackbodies at level 2 (the temperature values prior to power turnoff on July 2).

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month, except from 22:04 UT on July 2 to 17:16 UT on July 3 when the instrument was in stow because of the yaw-turn anomaly. Successful internal calibrations were performed on July 8 and 22.

An analysis was performed to determine the effects on the performance of the ERBE instruments that might have resulted from the large-angle spacecraft rotations, the instrument scanning the Sun, and the instruments being powered off for several hours. The zero offsets of the nonscanner radiometric detectors were determined to have been altered slightly, but at levels which could easily be accounted for in the data reduction model. The time series of the scanner internal calibrations from November 1984 through October 1988 shows no changes in the responses of the scanning radiometric detectors.

**ERBS spacecraft—August 1987.** In August 1987 the percentage of data archived to the RAT was 99.84 and to the PAT was 99.73. (See table 1(g).) The  $\beta$  angle decreased from about  $91^\circ$  at the beginning of the month to a minimum of  $21^\circ$  on August 22, and then it increased to  $47^\circ$  by the end of the month. (See figs. 5 and 6.) Heating effects can be observed in both instruments during the low  $\beta$  angle period of about August 17 through August 27. The spacecraft operated with its X-axis negative for the entire month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month, except during calibrations. Successful internal and solar calibrations were performed on August 5, 12, and 28. A successful internal calibration was also performed on August 17. However, the solar calibration attempted on August 17 was unsuccessful because the azimuth angle data were not properly communicated to the instrument.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  from the beginning of the month until 19:02 UT on August 17 when it was rotated to  $145^\circ$  to prevent the scanner detectors from scanning the Sun during the full-Sun condition. The azimuth beam was rotated back to  $180^\circ$  at 14:49 UT on August 27 and remained there for the rest of the month. Several scanner housekeeping temperatures were higher than normal during the full-Sun period, but the health of the instrument was unaffected. Successful internal calibrations were performed on August 5, 12, 17, and 28.

**ERBS spacecraft—September 1987.** In September 1987 the percentage of data archived to the RAT was 99.99 and to the PAT was 99.72. (See table 1(h).) The  $\beta$  angle increased from about  $50^\circ$  at the beginning of the month to a maximum of about  $150^\circ$  at the end of the month. (See figs. 5 and 6.) Both the scanner and nonscanner instruments ex-

hibited increased heating at the end of the month, but the spacecraft was never in full sunlight for an entire orbit. The spacecraft was configured with its X-axis negative from the beginning of the month until 13:20 UT on September 10 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its X-axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  for the entire month, except during calibrations. Successful internal and solar calibrations were performed on September 2, 9, 16, and 30. Nonscanner housekeeping and analog temperatures were somewhat higher than normal at the end of the month, but the health of the instrument was not affected. Beginning with this month, the azimuth angle load commands for the nonscanner instrument solar calibrations were sent on the day before the calibration.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Scanner housekeeping and analog temperatures were higher than normal at the end of the month, but instrument health was not affected. Successful internal calibrations were performed on September 2, 9, 16, and 30.

**ERBS spacecraft—October 1987.** In October 1987 the percentage of data archived to the RAT was 100 and to the PAT was 99.92. (See table 1(i).) The  $\beta$  angle decreased from about  $148^\circ$  at the beginning of the month to about  $50^\circ$  at the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its X-axis positive from the beginning of the month until 14:25 UT on October 16 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its X-axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  for the entire month except during calibrations. Successful internal and solar calibrations were performed on October 14 and 28.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on October 14 and 28.

**ERBS spacecraft—November 1987.** In November 1987 the percentage of data archived to the RAT was 100 and to the PAT was 99.90. (See table 1(j).) The  $\beta$  angle decreased from about  $50^\circ$  at the beginning of the month to a minimum of about  $48^\circ$  on November 3, and then it increased to about

134° by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 13:15 UT on November 19 when a 180° yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of 0° for the entire month except during calibrations. Successful internal and solar calibrations were performed on November 11 and 25.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of 180° for the entire month. Successful internal calibrations were performed on November 11 and 25.

**ERBS spacecraft—December 1987.** In December 1987 the percentage of data archived to the RAT was 99.98 and to the PAT was 99.90. (See table 1(k).) The  $\beta$  angle increased from about 138° at the beginning of the month to about 170° on December 10, the maximum value for the year. The  $\beta$  angle then decreased to about 90° by December 31. (See figs. 5 and 6.) The spacecraft operated in full-Sun conditions from December 3 through 17. Because  $\beta$  passes through the maximum heating conditions at 156°, both before and after reaching 170° on December 10, this period of full Sun is similar to the one in June that exhibited a dog-ear (double maxima) pattern of temperature values. Heating effects can be seen in both instruments. The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 15:18 UT on December 30, when a 180° yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of 0° throughout the month except during calibrations. Successful internal and solar calibrations were performed on December 3, 18, and 23. Several nonscanner housekeeping temperatures increased significantly during the full-Sun period, but no temperatures rose above critical levels.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at 180°, except from 15:17 UT on December 3 through 17:03 UT on December 17 when it operated at 145° to prevent the scanner detectors from scanning the Sun during full-Sun orbits. During this period several scanner housekeeping temperatures increased significantly, but no temperatures rose above critical levels. Internal calibrations of the

scanner instrument were successfully performed on December 3, 18, and 23.

**ERBS spacecraft—January 1988.** In January 1988 the percentage of data archived to the RAT was 99.95 and to the PAT was 98.96. (See table 1(l).) The  $\beta$  angle decreased from about 87° at the beginning of the month to about 54° on January 15, and then it increased to about 93° by January 31. (See figs. 5 and 6.) The spacecraft operated with its  $X$ -axis negative from the beginning of the month until 13:16 UT on January 29, when a 180° yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of 0° throughout the month except during calibrations. Successful internal and solar calibrations were performed on January 6 and 20.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of 180° for the entire month. Successful internal calibrations were performed on January 6 and 20.

**ERBS spacecraft—February 1988.** In February 1988 the percentage of data archived to the RAT was 99.97 and to the PAT was 99.95. (See table 2(a).) The  $\beta$  angle increased from about 97° at the beginning of the month to about 158° on February 19, and then it decreased to about 132° by the end of the month. (See figs. 5 and 6.) Both the scanner and nonscanner instruments experienced above-normal heating during the high  $\beta$  angle period of about February 14 through February 24. The spacecraft operated with its  $X$ -axis positive for the entire month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of 0° throughout the month except during calibrations. Successful internal and solar calibrations were performed on February 3, 14, and 25. Several nonscanner housekeeping temperatures increased significantly during the high  $\beta$  angle period of February 14–24, but no temperatures rose above critical levels.

The scanner instrument operated in the normal Earth scan mode for the entire month. To prevent the detectors from scanning the Sun during the full-Sun period, the scanner azimuth beam operated at 145° from 15:48 UT on February 14 until 18:10 UT on February 24, and then it operated at 180° during the rest of the month. Successful internal calibrations were performed on February 3, 14, and 25. Several



housekeeping temperatures increased during the full-Sun period, but no temperatures rose above critical levels.

**ERBS spacecraft—March 1988.** In March 1988 the percentage of data archived to the RAT was 100 and to the PAT was 99.90. (See table 2(b).) The  $\beta$  angle decreased from about  $129^\circ$  at the beginning of the month to about  $30^\circ$  on March 28, and then it increased to about  $32^\circ$  by March 31. (See figs. 5 and 6.) Both instruments exhibited increased heating toward the end of the month because of the low  $\beta$  angle, although the spacecraft was never in full sunlight during March. The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 15:04 UT on March 9 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on March 2, 16, and 30.

The scanner instrument operated in the normal Earth scan mode, and the azimuth beam operated at  $180^\circ$  for the entire month. Successful internal calibrations were performed on March 2, 16, and 30.

**ERBS spacecraft—April 1988.** In April 1988 the percentage of data archived to the RAT was 99.97 and to the PAT was 99.88. (See table 2(c).) The  $\beta$  angle increased from about  $32^\circ$  at the beginning of the month to about  $129^\circ$  at the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 14:32 UT on April 15 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful nonscanner internal and solar calibrations were performed on April 13 and 27. A modified calibration sequence was implemented beginning with the April 27 calibration. The new calibration sequence, which is listed in tables 13(a) and 13(b), differs from the previous calibration sequence in four ways. After the Sun passes through the solar port field of view, the solar port heater is turned off and the solar port temperature is allowed to decay significantly. While the spacecraft is in full darkness and at nadir elevation, the calibration heater voltage is varied through its entire range

at approximately 3 hours before the beginning of the internal calibration, and again at approximately 1.5 hours after completion of the solar calibration. The calibration heater voltage is also varied through its entire range immediately after the solar calibration while the instrument is at the solar port elevation position. Also, during the internal calibration, the calibration heater voltage remains at each level for a longer time, thus allowing the measurements to stabilize. This modified calibration sequence was used for all subsequent nonscanner calibrations performed during the period of this paper.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on April 13 and 27.

**ERBS spacecraft—May 1988.** In May 1988 the percentage of data archived to the RAT was 99.98 and to the PAT was 99.86. (See table 2(d).) The  $\beta$  angle increased from about  $130^\circ$  at the beginning of the month to about  $131^\circ$  on May 3, and then it decreased to about  $40^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 14:45 UT on May 18 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on May 11 and 25.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Internal calibrations were successfully performed on May 11 and 25.

**ERBS spacecraft—June 1988.** In June 1988 the percentage of data archived to the RAT was 100 and to the PAT was 99.91. (See table 2(e).) The  $\beta$  angle decreased from about  $38^\circ$  at the beginning of the month to  $10^\circ$  on June 9, the lowest value of the year. The  $\beta$  angle then increased to about  $89^\circ$  by the end of the month. (See figs. 5 and 6.) Because  $\beta$  passes through  $24^\circ$  both before and after reaching  $10^\circ$  on June 9, a dog-ear or double maxima pattern occurs in the temperature plots for both instruments. (See, for example, fig. 14 for nonscanner solar monitor heat sink and aperture temperatures and fig. 19 for scanner blackbody temperatures.) The spacecraft operated with its  $X$ -axis negative from the beginning of the month until 15:21 UT on June 29 when a  $180^\circ$  yaw maneuver was performed. The

spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on June 2, 17, and 22. During the full-Sun period, some housekeeping temperatures exceeded their normal values, but the health of the instrument was not threatened. Maximum temperatures were seen on June 5 and 13 when the  $\beta$  angle was about  $20^\circ$ , rather than on June 9 when the  $\beta$  angle was at its minimum value of  $10^\circ$ .

The scanner instrument operated in the normal Earth scan mode for the entire month. At 18:53 UT on June 2, the instrument was commanded to an azimuth position of  $145^\circ$  to prevent the detectors from scanning the Sun during the full-Sun period. However, this rotation was unsuccessful and the azimuth beam remained at  $180^\circ$ . To correct this, on June 3, the azimuth beam was rotated to  $0^\circ$  at 18:45 UT and then to  $145^\circ$  at 18:51 UT. The azimuth beam remained at  $145^\circ$  until 10:38 UT on June 16 when it was rotated back to  $180^\circ$ , where it remained for the rest of the month. Some scanner housekeeping temperatures were higher than normal during the full-Sun period with peaks on June 5 and 13. Successful internal calibrations were performed on June 2, 17, and 22.

**ERBS spacecraft—July 1988.** In July 1988 the percentage of data archived to the RAT was 100 and to the PAT was 99.73. (See table 2(f).) The  $\beta$  angle increased from about  $93^\circ$  at the beginning of the month to about  $126^\circ$  on July 15, and then it decreased to about  $88^\circ$  at the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 14:38 UT on July 28 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  for the entire month except during calibrations. Successful internal and solar calibrations were performed on July 6 and 20.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on July 6 and 20.

**ERBS spacecraft—August 1988.** In August 1988 the percentage of data archived to the

RAT was 100 and to the PAT was 99.74. (See table 2(g).) The  $\beta$  angle decreased from about  $86^\circ$  at the beginning of the month to about  $21^\circ$  on August 20, and then it increased to about  $52^\circ$  by the end of the month. (See figs. 5 and 6.) Heating effects can be observed on both instruments during the low  $\beta$  angle period of about August 15 through August 25. (See, for example, fig. 14 for solar monitor heat sink and aperture temperatures and fig. 19 for scanner blackbody temperatures.) The spacecraft was configured with its  $X$ -axis negative for the entire month of August.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on August 3, 15, 26, and 31. Several housekeeping temperatures increased significantly during the low  $\beta$  angle period of August 15 through 25, but no temperatures rose above critical levels.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  from the beginning of the month until 17:29 UT on August 15 when it was rotated to  $145^\circ$  to prevent the detectors from scanning the Sun during the full-Sun period. The azimuth beam was rotated back to  $180^\circ$  at 14:58 UT on August 25, and it remained there for the rest of the month. Several housekeeping temperatures were higher than normal during the full-Sun period, but the health of the instrument was not affected. Successful internal calibrations were performed on August 3, 15, 26, and 31.

**ERBS spacecraft—September 1988.** In September 1988 the percentage of data archived to the RAT was 99.89 and to the PAT was 99.53. (See table 2(h).) The  $\beta$  angle increased from about  $57^\circ$  at the beginning of the month to about  $149^\circ$  on September 27, and then it decreased to about  $147^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 14:51 UT on September 7 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on September 14 and 28.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position

of  $180^\circ$  for the entire month. Successful internal calibrations were performed on September 14 and 28.

**ERBS spacecraft—October 1988.** In October 1988 the percentage of data archived to the RAT was 99.93 and to the PAT was 99.60. (See table 2(i).) The  $\beta$  angle decreased from about  $145^\circ$  at the beginning of the month to about  $49^\circ$  at the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 15:54 UT on October 14 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on October 12 and 26.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  the entire month. Successful internal calibrations were performed on October 12 and 26.

**ERBS spacecraft—November 1988.** In November 1988 the percentage of data archived to the RAT was 99.99 and to the PAT was 99.58. (See table 2(j).) The  $\beta$  angle increased from about  $48^\circ$  at the beginning of the month to about  $141^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 14:21 UT on November 16 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on November 9 and 23.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on November 9 and 23.

**ERBS spacecraft—December 1988.** In December 1988 the percentage of data archived to the RAT was 99.71 and to the PAT was 99.46. (See table 2(k).) The  $\beta$  angle increased from about  $145^\circ$  at the beginning of the month to a maximum of about  $170^\circ$  on December 9, and then it decreased to about  $84^\circ$  by the end of the month. (See figs. 5 and 6.) The  $170^\circ$   $\beta$  angle on December 9 was the maximum for the year. The spacecraft was configured with its

$X$ -axis positive from the beginning of the month until 16:23 UT on December 28 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on December 2, 16, and 21. Several nonscanner housekeeping temperatures increased significantly during the high  $\beta$  angle period of December 2 through December 15, but no temperatures rose above critical levels.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  except from 16:41 UT on December 2 until 18:08 UT on December 15 when it operated at  $145^\circ$ . During this high  $\beta$  angle period, several scanner housekeeping temperatures increased significantly, but no temperatures rose above critical levels. Internal calibrations of the scanner instrument were successfully performed on December 2, 16, and 21. On December 16 two sets of internal calibration commands were sent to the instrument; however, the pulse commands to turn the blackbody heaters on and off were sent only once at the proper times during the first sequence of internal calibration commands.

**ERBS spacecraft—January 1989.** In January 1989 the percentage of data archived to the RAT was 99.99 and to the PAT was 99.58. (See table 2(l).) The  $\beta$  angle decreased from about  $81^\circ$  at the beginning of the month to about  $55^\circ$  on January 13, and then it increased to about  $99^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 13:50 UT on January 26 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. A set of azimuth angle load commands was sent to the instrument on January 3. However, the angle was incorrect. The correct angle was sent to the instrument on January 4. Successful internal and solar calibrations of the nonscanner instrument were performed on January 5 and 18.

The scanner instrument operated in the normal Earth scan mode and the azimuth beam operated at  $180^\circ$  for the entire month. Internal calibrations of

the scanner instrument were successfully performed on January 5 and 18.

**ERBS spacecraft—February 1989.** In February 1989 the percentage of data archived to the RAT was 100 and to the PAT was 99.89. (See table 3(a).) The  $\beta$  angle increased from about  $102^\circ$  at the beginning of the month to a maximum of about  $158^\circ$  on February 18, and then it decreased to about  $129^\circ$  by the end of the month. (See figs. 5 and 6.) Both the scanner and nonscanner instruments experienced above-normal heating during the high  $\beta$  angle period of about February 13 through February 23. The spacecraft was configured with its  $X$ -axis positive for the entire month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Several nonscanner housekeeping temperatures increased significantly during the high  $\beta$  angle period, but no temperatures rose above critical levels. Successful internal and solar calibrations of the nonscanner instrument were performed on February 1, 12, and 24.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  from the beginning of the month until 19:46 UT on February 13 when it was rotated to  $145^\circ$  to prevent the scanner detectors from scanning the Sun during the full-Sun period. The azimuth beam was rotated back to  $180^\circ$  at 17:12 UT on February 23 and remained there for the rest of the month. Several scanner housekeeping temperatures increased significantly, but no temperatures rose above critical levels. Successful scanner internal calibrations were performed on February 1, 12, and 24.

**ERBS spacecraft—March 1989.** In March 1989 the percentage of data archived to the RAT was 100 and to the PAT was 99.71. (See table 3(b).) The  $\beta$  angle decreased from about  $125^\circ$  at the beginning of the month to about  $30^\circ$  by March 28, and then it increased to about  $33^\circ$  by March 31. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 15:10 UT on March 7 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations of the nonscanner instrument were

performed on March 1, 22, and 29, and an additional successful internal calibration was performed on March 15. A solar calibration attempted on March 15 was unsuccessful because azimuth angle data were not sent to the instrument prior to the calibration attempt. As a result, the instrument rotated to the azimuth position for the previous solar calibration and, thus, was not at the proper azimuth position to detect the Sun.

The scanner instrument operated in the normal Earth scan mode and the azimuth beam operated at  $180^\circ$  for the entire month. Successful internal calibrations were performed on March 1, 15, 22, and 29. On both March 15 and 22 the automated internal calibration sequence was executed twice, although the blackbody pulse commands were executed only once at the proper time for the first calibration sequence on each of these days.

**ERBS spacecraft—April 1989.** In April 1989 the percentage of data archived to the RAT was 100 and to the PAT was 99.73. (See table 3(c).) The  $\beta$  angle increased from about  $36^\circ$  at the beginning of the month to about  $130^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 16:04 UT on April 14 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on April 12 and 26.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on April 12 and 26.

**ERBS spacecraft—May 1989.** In May 1989 the percentage of data archived to the RAT was 100 and to the PAT was 99.68. (See table 3(d).) The  $\beta$  angle remained steady at about  $131^\circ$  for the first three days of the month, and then it decreased to about  $38^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 14:08 UT on May 18 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except

during calibrations. Successful internal and solar calibrations were performed on May 10 and 24.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on May 10 and 24.

**ERBS spacecraft—June 1989.** In June 1989 the percentage of data archived to the RAT was 100 and to the PAT was 99.64. (See table 3(e).) The  $\beta$  angle decreased from about  $33^\circ$  at the beginning of the month to a minimum of  $10^\circ$  on June 8, and then it increased to about  $92^\circ$  by the end of the month. (See figs. 5 and 6.) The  $10^\circ$   $\beta$  angle on June 8 is the minimum that occurs during the entire year for the ERBS orbit. The spacecraft was in near or full-Sun conditions from about June 3 until June 14, and both the scanner and nonscanner instruments experienced above-normal heating during this period. The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 00:56 UT on June 28 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. During the full-Sun period, several housekeeping temperatures failed some edit checks, but the health of the instrument was not threatened. Successful internal and solar calibrations were performed on June 1, 16, and 21.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  except from 17:31 UT on June 1 until 19:00 UT on June 15, when it operated at  $145^\circ$  to prevent the detectors from scanning the Sun during the full-Sun period. During this period several housekeeping measurements were higher than normal, but no temperatures rose above critical levels. Successful internal calibrations were performed on June 1, 16, and 21.

**ERBS spacecraft—July 1989.** In July 1989 the percentage of data archived to the RAT was 99.90 and to the PAT was 99.68. (See table 3(f).) The  $\beta$  angle increased from about  $96^\circ$  at the beginning of the month to about  $126^\circ$  on July 14, and then it decreased to about  $85^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 14:05 UT on July 27 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on July 5 and 19.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on July 5 and 19.

**ERBS spacecraft—August 1989.** In August 1989 the percentage of data archived to the RAT was 99.74 and to the PAT was 99.56. (See table 3(g).) The  $\beta$  angle decreased from about  $82^\circ$  at the beginning of the month to a minimum of  $20^\circ$  on August 19, and then it increased to about  $57^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft operated in or near the full-Sun condition from about August 16 until about August 23. Both the scanner and nonscanner instruments experienced some increased housekeeping temperatures during this period. The spacecraft was configured with its  $X$ -axis negative for the entire month of August.

The nonscanner instrument operated in the normal Earth-viewing mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Several nonscanner housekeeping temperatures increased significantly during the full-Sun period of August 16 through August 23, but no temperatures rose above critical levels. Successful internal and solar calibrations were performed on August 2, 14, 25, and 30.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  except from 14:59 UT on August 14 until 17:07 UT on August 24. During this full-Sun period, the azimuth beam operated at  $145^\circ$  to prevent the detectors from scanning the Sun. Several scanner housekeeping temperatures increased significantly during this period, but no temperatures rose above critical levels. Successful internal calibrations were performed on August 2, 14, 25, and 30.

**ERBS spacecraft—September 1989.** In September 1989 the percentage of data archived to the RAT was 100 and to the PAT was 99.80. (See table 3(h).) The  $\beta$  angle increased from about  $60^\circ$  at the beginning of the month to about  $148^\circ$  on September 26, and then it decreased to about  $143^\circ$  by the end of the month. (See figs. 5 and 6.) Both instruments exhibited increased heating at the end of the month, but the spacecraft was never in full sunlight for an entire orbit. The spacecraft was configured

with its  $X$ -axis negative from the beginning of the month until 15:14 UT on September 6 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on September 13 and 27.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Successful internal calibrations were performed on September 13 and 27.

***ERBS spacecraft—October 1989.*** In October 1989 the percentage of data archived to the RAT was 99.98 and to the PAT was 99.72. (See table 3(i).) The  $\beta$  angle decreased from about  $141^\circ$  at the beginning of the month to about  $48^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 15:15 UT on October 13 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations were performed on October 11 and 25.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Internal calibrations of the scanner instrument were successfully performed on October 11 and 25.

***ERBS spacecraft—November 1989.*** In November 1989 the percentage of data archived to the RAT was 99.95 and to the PAT was 99.61. (See table 3(j).) The  $\beta$  angle increased from about  $48^\circ$  at the beginning of the month to about  $147^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was configured with its  $X$ -axis negative from the beginning of the month until 19:26 UT on November 14, when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations of the nonscanner instrument were performed on November 8, 22, and 30.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $180^\circ$  from the beginning of the month until 14:40 UT on November 30 when it was rotated to a position of  $145^\circ$ , where it remained for the rest of the month. This azimuth rotation was performed so that when the spacecraft operated in full-Sun conditions in early December, the scanner detectors would not directly scan the Sun. Scanner housekeeping temperatures increased toward the end of the month as the spacecraft approached full-Sun conditions, but all temperatures remained well within edit limits. Internal calibrations of the scanner instrument were successfully performed on November 8, 22, and 30.

***ERBS spacecraft—December 1989.*** In December 1989 the percentage of data archived to the RAT was 99.99 and to the PAT was 99.79. (See table 3(k).) The  $\beta$  angle increased from about  $150^\circ$  at the beginning of the month to about  $170^\circ$  on December 7, its maximum value for the year, and then it decreased to about  $80^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft operated in full Sun from December 2 through December 13 when the  $\beta$  angle was greater than about  $156^\circ$ . Heating effects can be seen in both the scanner and nonscanner instruments. The spacecraft was configured with its  $X$ -axis positive from the beginning of the month until 19:00 UT on December 28 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its  $X$ -axis negative for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Several nonscanner housekeeping temperatures increased significantly during the full-Sun period of December 2 through December 13, but no temperatures rose above critical levels. Successful internal and solar calibrations of the nonscanner instrument were performed on December 15 and 20.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam had been rotated to  $145^\circ$  on November 30 as the spacecraft approached full-Sun conditions. The instrument operated at this azimuth position from the beginning of the month until 19:09 UT on December 14 when it was rotated to  $180^\circ$ , where it remained for the rest of the month. During the full-Sun period of December 2 through December 13, several scanner housekeeping temperatures increased significantly, but no temperatures rose above critical levels. Internal calibrations of the scanner instrument were successfully performed on December 15 and 20.

**ERBS spacecraft—January 1990.** In January 1990 the percentage of data archived to the RAT was 100 and to the PAT was 99.85. (See table 3(l).) The  $\beta$  angle decreased from about  $77^\circ$  at the beginning of the month to about  $55^\circ$  on January 12, and then it increased to about  $104^\circ$  by January 31. (See figs. 5 and 6.) The spacecraft was configured with its X-axis negative from the beginning of the month until 18:50 UT on January 25 when a  $180^\circ$  yaw maneuver was performed. The spacecraft operated with its X-axis positive for the remainder of the month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Successful internal and solar calibrations of the nonscanner instrument were performed on January 3, 17, and 31.

The scanner instrument operated in the normal Earth scan mode and at the normal azimuth position of  $180^\circ$  for the entire month. Internal calibrations of the scanner instrument were successfully performed on January 3, 17, and 31.

**ERBS spacecraft—February 1990.** In February 1990 the percentage of data archived to the RAT was 99.97 and to the PAT was 99.44. (See table 3(m).) The  $\beta$  angle increased from about  $108^\circ$  at the beginning of the month to about  $159^\circ$  on February 17, and then it decreased to about  $123^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was in or near a full-Sun condition from about February 13 until about February 20. The spacecraft was configured with its X-axis positive for the entire month.

The nonscanner instrument operated in the normal Earth-viewing elevation mode and at the normal azimuth position of  $0^\circ$  throughout the month except during calibrations. Several nonscanner housekeeping temperatures increased significantly during the full-Sun period of February 13 through 20, but no temperatures rose above critical levels. Successful internal and solar calibrations of the nonscanner instrument were performed on February 11, 23, and 28.

The scanner instrument failed at 11:50 UT on February 28, just prior to a scheduled internal calibration. An analysis of the failure was inconclusive, and the cause of the scanner failure remains undetermined. No scanner data are available after February 28, 1990. The scanner instrument was powered off on March 7, 1991.

The scanner instrument operated in the normal Earth scan mode from the beginning of the month until the instrument failure. The azimuth beam

operated at  $180^\circ$  except from 10:57 UT on February 11 until 14:42 UT on February 22 when it operated at  $145^\circ$ . During this full-Sun period, several scanner housekeeping temperatures increased significantly, but no temperatures rose above critical levels. Successful internal calibrations were performed on February 11 and 23. The scanner instrument failed before the scheduled calibration on February 28.

## NOAA 10 Spacecraft Operations

**NOAA 10 spacecraft—February 1987.** In February 1987 the percentage of data archived to the RAT was 98.17 and to the PAT was 97.03. (See table 1(a).) The  $\beta$  angle decreased from about  $21^\circ$  at the beginning of the month to about  $19.7^\circ$  on February 20, and then it increased to about  $20^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was in full sunlight during this time. The scanner instrument continued to operate at an offtrack azimuth position of  $35^\circ$  to prevent the detectors from directly scanning the Sun.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal azimuth position of  $180^\circ$  for the entire month except during calibrations. Successful internal and solar calibrations were performed on February 4 and 18.

The scanner instrument operated in the normal Earth scan mode during the entire month. The azimuth beam operated at  $35^\circ$  during the entire month. Elevation-beam motion was irregular throughout the month with severe problems on February 3 through February 6 and February 23 through February 28. Internal calibrations of the scanner instrument were successfully performed on February 4 and 18. No scanner solar calibrations were performed in February. Solar calibrations were discontinued for the NOAA 10 scanner instrument following problems encountered during a solar calibration attempted on November 12, 1986. (See ref. 2.)

**NOAA 10 spacecraft—March 1987.** In March 1987 the percentage of data archived to the RAT was 99.09 and to the PAT was 98.09. (See table 1(b).) The  $\beta$  angle increased from about  $20^\circ$  at the beginning of the month to about  $25.8^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full sunlight during this time.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal azimuth position of  $180^\circ$  for the entire month except during calibration. Successful internal and solar calibrations were performed on March 4 and 18.

The scanner instrument operated in the normal Earth scan mode with the scanner azimuth position

at  $35^\circ$  throughout the month. The instrument experienced severe elevation-beam motion problems, as well as problems with DAC and SWICS amplifier voltages, throughout the month. On most days in March uncertainties in scanner elevation-beam position resulted in a significant data loss, because view vectors could be calculated for less than half of the processed data records. The irregular elevation-beam motion also resulted in a misalignment of the detectors at the internal calibration sources during the internal calibrations, which significantly impacted the calibration data. Internal calibrations of the scanner instrument were performed on March 4 and 18, but the misalignment of the detectors with the internal calibration sources was so severe that the calibration data were unusable. The misalignment affected the response of the shortwave detectors during both internal calibrations with the result that the detector did not consistently reach the SWICS during the scan cycle. This problem was evident at all four scan positions at which the detectors view the internal calibration sources.

**NOAA 10 spacecraft—April 1987.** In April 1987 the percentage of data archived to the RAT was 97.45 and to the PAT was 97.02. (See table 1(c).) The  $\beta$  angle increased from about  $26^\circ$  at the beginning of the month to about  $33.7^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full sunlight while the  $\beta$  angle was below  $27^\circ$ .

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal azimuth position of  $180^\circ$  for the entire month except during calibrations. Successful internal and solar calibrations were performed on April 1, 15, and 29. The solar monitor shutter appeared to be operating normally during the April 1 solar calibration; however, during the April 15 and 29 solar calibrations, it appeared to be operating in the open mode, instead of the chopped mode. Although the solar monitor shutter operated in the open mode instead of the chopped mode for all solar calibrations performed after April 1, 1987, these calibrations still provided useful data and they are classified as successful calibrations. New set points for the nonscanner blackbody temperatures were transmitted on April 21. These were  $30.973^\circ$  for both temperature levels 1 and 2 on both the MFOV and WFOV blackbodies.

The scanner instrument operated in the normal Earth scan mode throughout the month. The scanner azimuth beam operated at  $35^\circ$  from the beginning of the month until 17:44 UT on April 21 when it was rotated to  $0^\circ$ . The instrument experienced severe elevation-beam motion problems, accompanied

by DAC and SWICS amplifier voltage problems, during the first 5 days in April. Uncertainties in scanner elevation-beam position during these 5 days resulted in a significant data loss because view vectors were calculated for only about 60 percent of the processed data records. After April 5 the instrument experienced less severe, but still significant, difficulties in scan beam motion.

Internal calibrations of the scanner instrument were performed on April 1 and 29. Misalignment of the detectors with the internal calibration sources caused by irregular elevation-beam motion affected the response of the shortwave detectors during both internal calibrations. During the April 1 calibration the detector did not consistently reach the SWICS during the scan cycle at any of the scan positions at which the detectors view the internal calibration sources. The April 29 calibration showed significant misalignment with the SWICS only at the first internal calibration position.

**NOAA 10 spacecraft—May 1987.** In May 1987 the percentage of data archived to the RAT was 98.62 and to the PAT was 98.38. (See table 1(d).) The  $\beta$  angle increased from about  $33.8^\circ$  at the beginning of the month to about  $38.8^\circ$  by the end of the month. (See figs. 7 and 8.) This was the first full month since launch that the NOAA 10 spacecraft did not operate in full-Sun conditions.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month. No nonscanner calibrations were performed during May.

The scanner instrument operated in the normal Earth scan mode and at the normal cross-track azimuth position of  $0^\circ$  throughout the month. This was the first month since launch that the scanner operated at an azimuth position of  $0^\circ$  for the entire month. The instrument experienced significant elevation-beam motion problems throughout the month. These were slightly less severe than those that occurred in April. The elevation-beam motion problems were particularly severe at the first Earth-viewing scan position and at the internal calibration scan positions. The main effect of this irregular elevation-beam motion was to shift the radiometric sample positions toward the space clamp side of the orbit. However, geolocations and view vectors were correctly calculated.

Internal calibrations of the scanner instrument were successfully performed on May 13 and 27. Some calibration data were degraded because the irregular scanner elevation motion caused the detectors to



be misaligned with the internal calibration sources during both internal calibrations.

**NOAA 10 spacecraft—June 1987.** In June 1987 the percentage of data archived to the RAT was 98.16 and to the PAT was 97.57. (See table 1(e).) The  $\beta$  angle increased from about  $38.9^\circ$  at the beginning of the month to about  $39.5^\circ$  on June 16, and then it decreased to about  $39.0^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month. Successful internal calibrations were performed on June 10 and 24. The preinternal calibration sequence commands that are normally executed were not issued for the June 10 or 24 calibrations. This did not affect the calibrations. No solar calibrations were performed in June.

The scanner instrument operated in the normal Earth scan mode and at the normal cross-track azimuth position of  $0^\circ$  throughout the month. The instrument continued to experience significant elevation-beam motion problems throughout the month, although the performance was somewhat improved over that of previous months. A scanner internal calibration was successfully performed on June 10.

**NOAA 10 spacecraft—July 1987.** No data were received from NOAA for July 28 and 29, 1987. Excluding these two days, the percentage of data archived to the RAT was 95.68 and to the PAT was 94.09. (See table 1(f).) This was the first NOAA 10 data month to be archived. The  $\beta$  angle decreased from about  $38.9^\circ$  at the beginning of the month to about  $34.9^\circ$  at the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal azimuth position of  $180^\circ$  throughout the month except during calibrations. An internal calibration was performed on July 8, but data dropouts caused the loss of most of the data during the calibration. A successful internal calibration was performed on July 22. The preinternal calibration sequence commands that are normally executed were not issued for the July 22 calibration, but this did not affect the calibration. Because of the data dropout during the calibration on July 8, it is not possible to determine if the preinternal calibration sequence commands were issued on that day. No solar calibrations were performed.

The scanner instrument operated in the normal Earth scan mode and at the normal cross-track azimuth position of  $0^\circ$  during the entire month. Inter-

nal calibrations were successfully performed on July 8 and 22.

**NOAA 10 spacecraft—August 1987.** In August 1987 the percentage of data archived to the RAT was 98.30 and to the PAT was 97.11. (See table 1(g).) The  $\beta$  angle decreased from about  $34.8^\circ$  at the beginning of the month to about  $29.6^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month. Successful nonscanner internal calibrations were performed on August 5 and 19, and a successful nonscanner solar calibration was performed on August 19. The preinternal calibration sequence commands that are normally executed were not issued for the calibration on August 5, but this did not affect the calibration.

The scanner instrument operated in the normal Earth scan mode for the entire month. The scanner azimuth beam operated at  $0^\circ$  from the beginning of the month until 12:38 UT on August 31, when it was rotated to  $35^\circ$ . This was done to prevent the scanner detectors from scanning the Sun as the spacecraft approached full-Sun conditions. Scanner internal calibrations were successfully performed on August 5 and 19.

**NOAA 10 spacecraft—September 1987.** In September 1987 the percentage of data archived to the RAT was 95.69 and to the PAT was 94.31. (See table 1(h).) The  $\beta$  angle decreased from about  $29.4^\circ$  at the beginning of the month to about  $27.2^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in near-full-Sun conditions by the end of the month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on September 2, 16, and 30.

The scanner instrument operated in the normal Earth scan mode with the azimuth beam at  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun during full-Sun conditions. Scanner internal calibrations were successfully performed on September 2, 16, and 30.

**NOAA 10 spacecraft—October 1987.** In October 1987 the percentage of data archived to the RAT was 98.31 and to the PAT was 97.79. (See table 1(i).) The  $\beta$  angle increased from about

27.2° at the beginning of the month to about 28.3° by the end of the month. (See figs. 7 and 8.) The spacecraft operated in near-full-Sun conditions during the month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal 180° azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on October 14 and 28.

The scanner instrument operated in the normal Earth scan mode for the entire month with the azimuth position at 35° for the entire month. Operation at this azimuth position prevented the scanner detectors from scanning the Sun as the spacecraft operated in near-full-Sun conditions. Scanner internal calibrations were successfully performed on October 14 and 28.

**NOAA 10 spacecraft—November 1987.** In November 1987 the percentage of data archived to the RAT was 97.85 and to the PAT was 96.20. (See table 1(j).) The  $\beta$  angle increased from about 28.3° at the beginning of the month to about 29.1° by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal 180° azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on November 11 and 25.

The scanner instrument operated in the normal Earth scan mode with the azimuth at 35° for the entire month. Operation at this azimuth position prevented the scanner detectors from scanning the Sun as the spacecraft operated in full-Sun conditions. Scanner internal calibrations were successfully performed on November 11 and 25.

**NOAA 10 spacecraft—December 1987.** In December 1987 the percentage of data archived to the RAT was 96.94 and to the PAT was 96.46. (See table 1(k).) The  $\beta$  angle decreased from about 29.1° at the beginning of the month to about 26.8° by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full Sun by the end of the month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal 180° azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on December 9 and 23. Several nonscanner housekeeping temperatures (including the field-of-view limiter, solar port

heater, and beam electronics board temperatures) failed high-edit checks at the end of the month when the  $\beta$  angle was below 27°. These temperatures did not exceed the safety limits established for the instrument.

The scanner instrument operated in the normal Earth scan mode and the azimuth beam operated at 35° for the entire month. This azimuth position prevented the scanner detectors from scanning the Sun as the spacecraft operated in full-Sun conditions. Scanner internal calibrations were successfully performed on December 9 and 23.

**NOAA 10 spacecraft—January 1988.** In January 1988 the percentage of data archived to the RAT was 98.75 and to the PAT was 98.34. (See table 1(l).) The  $\beta$  angle decreased from about 26.8° at the beginning of the month to about 22.2° by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full Sun during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal 180° azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on January 6 and 20. Several nonscanner housekeeping temperatures (including the field-of-view limiter, solar port heater, and beam electronics board temperatures) failed high-edit checks during January 1 through January 15 when the  $\beta$  angle was between 27° and 24.5°. These temperatures did not exceed the safety limits established for the instrument.

The scanner instrument operated in the normal Earth scan mode and the azimuth beam operated at 35° for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun as the spacecraft operated in full-Sun conditions. Scanner internal calibrations were successfully performed on January 6 and 20.

**NOAA 10 spacecraft—February 1988.** In February 1988 the percentage of data archived to the RAT was 92.31 and to the PAT was 91.66. (See table 2(a).) The  $\beta$  angle decreased from about 22.1° at the beginning of the month to about 20.7° on February 20, and then it increased to about 21.0° by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full Sun during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal 180° azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on February 3 and 17.

The scanner instrument operated in the normal Earth scan mode and the azimuth beam operated at  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun as the spacecraft operated in full-Sun conditions. Scanner internal calibrations were successfully performed on February 3 and 17.

**NOAA 10 spacecraft—March 1988.** In March 1988 the percentage of data archived to the RAT was 97.56 and to the PAT was 97.01. (See table 2(b).) The Sun angle increased from about  $21.1^\circ$  at the beginning of the month to about  $26.8^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full-Sun conditions during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at the  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on March 2, 16, and 30. Several nonscanner housekeeping temperatures (including the field-of-view limiter, aperture, and beam electronics board temperature) failed high-edit checks during March 28 through March 31, when the  $\beta$  angle was between  $26^\circ$  and  $27^\circ$ . These temperatures did not exceed the safety limits established for the instrument.

The scanner instrument operated in the normal Earth scan mode and the azimuth beam operated at  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun as the spacecraft operated in full-Sun conditions. Scanner internal calibrations were successfully performed on March 2, 16, and 30.

**NOAA 10 spacecraft—April 1988.** In April 1988 the percentage of data archived to the RAT was 98.82 and to the PAT was 98.37. (See table 2(c).) The  $\beta$  angle increased from about  $26.9^\circ$  at the beginning of the month to about  $34.3^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft operated in full Sun while the  $\beta$  angle was below  $27^\circ$ .

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month except during calibrations. Four nonscanner housekeeping temperatures (including WFOV total and MFOV short-wave field-of-view limiter temperatures, WFOV solar port temperature, and beam electronics board temperature) failed high-edit checks on April 1 and 2 when the  $\beta$  angle was about  $27^\circ$ . These temperatures did not exceed the safety limits established for the instrument.

Successful nonscanner internal and solar calibrations were performed on April 13 and 27. The calibration sequence was modified to facilitate the determination of count conversion coefficients from in-orbit data; the modifications were implemented with the calibration on April 27. The new calibration sequence, which is listed in table 13(c), differs from the previous calibration sequence in four ways. After the Sun passes through the solar port field of view, the solar port heater is turned off and the solar port temperature is allowed to decay significantly. While the spacecraft is in full darkness and at nadir elevation, the calibration heater voltage is varied through its entire range approximately 3 hours before the beginning of the internal calibration, and again at approximately 1.5 hours after the completion of the solar calibration. The calibration heater voltage is also varied through its entire range immediately after the solar calibration while the instrument is at the solar port elevation position. Also, during the internal calibration, the calibration heater voltage remains at each level for a longer time, thus allowing the measurements to stabilize.

The scanner instrument operated in the normal Earth scan mode for the entire month. The azimuth beam operated at  $35^\circ$  from the beginning of the month until April 19 to prevent the scanner detectors from scanning the Sun as the spacecraft operated in full Sun. The azimuth beam was rotated to  $0^\circ$  at 13:31 UT on April 19, and the instrument operated at this azimuth position for the remainder of the month. The instrument experienced some irregular elevation-beam motion throughout the month, although no significant problems occurred. Scanner internal calibrations were successfully performed on April 13 and 27.

**NOAA 10 spacecraft—May 1988.** In May 1988 the percentage of data archived to the RAT was 98.73 and to the PAT was 98.20. (See table 2(d).) The  $\beta$  angle increased from about  $34.5^\circ$  at the beginning of the month to about  $39.2^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month except during calibrations. Successful internal and solar calibrations were performed on May 11 and 25.

The scanner instrument operated in the normal Earth scan mode and at the normal cross-track azimuth position of  $0^\circ$  for the entire month. Elevation-beam motion problems became more evident during May, particularly during the latter part

of the month. Scanner internal calibrations were successfully performed on May 11 and 25.

**NOAA 10 spacecraft—June 1988.** In June 1988 the percentage of data archived to the RAT was 99.37 and to the PAT was 98.87. (See table 2(e).) The  $\beta$  angle increased from about  $39.2^\circ$  at the beginning of the month to about  $39.8^\circ$  on June 16, and then it decreased to about  $39.1^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on June 8 and 22.

The scanner instrument operated in the normal Earth scan mode and at an azimuth position of  $0^\circ$  for the entire month. Elevation-beam motion was significantly more variable than it had been in the past several months. Successful scanner internal calibrations were performed on June 8 and 22.

**NOAA 10 spacecraft—July 1988.** In July 1988 the percentage of data archived to the RAT was 96.35 and to the PAT was 95.76. (See table 2(f).) The  $\beta$  angle decreased from about  $39.1^\circ$  at the beginning of the month to about  $34.9^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at the normal  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on July 6 and 20.

The scanner instrument operated in the normal Earth scan mode and at the normal cross-track azimuth position of  $0^\circ$  for the entire month. Elevation-beam motion was irregular but showed some improvement during the second half of the month. Scanner internal calibrations were successfully performed on July 6 and 20.

**NOAA 10 spacecraft—August 1988.** In August 1988 the percentage of data archived to the RAT was 95.76 and to the PAT was 94.96. (See table 2(g).) The  $\beta$  angle decreased from about  $34.8^\circ$  at the beginning of the month to about  $29.6^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on August 3, 17, and 31.

The scanner instrument operated in the normal Earth scan mode for the entire month. The scanner

azimuth beam operated at  $0^\circ$  from the beginning of the month until 20:42 UT on August 29 when the instrument was rotated to an azimuth position of  $35^\circ$ . This was done to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun or near-full-Sun conditions. The instrument operated at this azimuth position for the remainder of the month. The scanner instrument experienced irregular elevation-beam motion throughout the month, especially during the first week. Successful scanner internal calibrations were performed on August 3, 17, and 31.

**NOAA 10 spacecraft—September 1988.** In September 1988 the percentage of data archived to the RAT was 98.53 and to the PAT was 97.80. (See table 2(h).) The  $\beta$  angle decreased from about  $29.4^\circ$  at the beginning of the month to about  $27.2^\circ$  by the end of the month. (See figs. 5 and 6.) The spacecraft was operating in near-full-Sun conditions during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on September 14 and 28. From 736 to 831 minutes of the day on September 14, the spacecraft data flag for “CPU not in control” was set, thus causing the solar calibration data to be flagged as bad even though the calibration was successfully performed.

The scanner instrument operated in the normal Earth scan mode and at an azimuth position of  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun conditions. The scanner instrument experienced irregular elevation-beam motion throughout September, particularly during the first half of the month. Successful scanner internal calibrations were performed on September 14 and 28.

**NOAA 10 spacecraft—October 1988.** In October 1988 the percentage of data archived to the RAT was 96.29 and to the PAT was 95.62. (See table 2(i).) The  $\beta$  angle increased from about  $27.1^\circ$  at the beginning of the month to about  $28.2^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in near-full-Sun conditions during the month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on October 12 and 26.

The scanner instrument operated in the normal Earth scan mode for the entire month. The scanner azimuth beam operated at  $35^\circ$  for the entire month to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun conditions. The scanner instrument elevation-beam motion was erratic throughout the month. Scanner internal calibrations were successfully performed on October 12 and 26.

**NOAA 10 spacecraft—November 1988.** In November 1988 the percentage of data archived to the RAT was 97.31 and to the PAT was 97.06. (See table 2(j).) The  $\beta$  angle increased from about  $28.2^\circ$  at the beginning of the month to about  $29.0^\circ$  on November 25, and then it decreased slightly to about  $28.9^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in near-full-Sun conditions during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on November 9 and 23.

The scanner instrument operated in the normal Earth scan mode and at an azimuth position of  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun. The scanner instrument elevation-beam operation was more regular during November than it had been in previous months, although some misalignment of the detectors still existed at the internal calibration positions. Scanner internal calibrations were successfully performed on November 9 and 23.

**NOAA 10 spacecraft—December 1988.** In December 1988 the percentage of data archived to the RAT was 98.45 and to the PAT was 98.00. (See table 2(k).) The  $\beta$  angle decreased from about  $28.9^\circ$  at the beginning of the month to about  $26.4^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in full-Sun conditions at the end of the month when the  $\beta$  angle was below  $27^\circ$ .

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on December 7 and 21.

The scanner instrument operated in the normal Earth scan mode for the entire month. The scanner azimuth beam operated at  $35^\circ$  for the entire month. Irregular elevation-beam motion resulted in misalignment of the detectors at the internal calibration po-

sitions. Successful scanner internal calibrations were performed on December 7 and 21.

**NOAA 10 spacecraft—January 1989.** In January 1989 the percentage of data archived to the RAT was 98.69 and to the PAT was 98.10. (See table 2(l).) The  $\beta$  angle decreased from about  $26.3^\circ$  at the beginning of the month to about  $21.8^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in full-Sun conditions during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on January 4 and 25. Slice 2 temperatures failed some edit checks throughout the month. On both January 24 and 31 a special sequence of commands was implemented in an unsuccessful attempt to restore the SMA shutter, which had been stuck in the open position since April 1, 1987, to normal operations. The implemented sequence rotated the instrument to an azimuth position at which the Sun passed through the solar monitor field of view once each orbit for seven consecutive orbits. During this period several SMA shutter on/off commands were issued, and the solar port and detector bias heaters were turned on and off. Following this sequence, the azimuth beam was rotated back to the  $180^\circ$  position. Because of these special operations, the nonscanner data for January 24 and 31 were not processed. The raw data are, however, included on the RAT tape.

The scanner instrument operated in the normal Earth scan mode and at an azimuth position of  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun conditions. Successful scanner internal calibrations were performed on January 4 and 25.

**NOAA 10 spacecraft—February 1989.** In February 1989 the percentage of data archived to the RAT was 97.72 and to the PAT was 97.45. (See table 3(a).) The  $\beta$  angle decreased from about  $21.7^\circ$  at the beginning of the month to about  $20.1^\circ$  on February 20, and then it increased to about  $20.3^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in full-Sun conditions during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on February 1 and 15.

The scanner instrument operated in the normal Earth scan mode and at an azimuth position of  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun conditions. The elevation-beam operation of the scanner instrument became highly irregular during February. Successful scanner internal calibrations were performed on February 1 and 15.

**NOAA 10 spacecraft—March 1989.** In March 1989 the percentage of data archived to the RAT was 98.08 and to the PAT was 97.75. (See table 3(b).) The  $\beta$  angle increased from about  $20.4^\circ$  at the beginning of the month to about  $25.9^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in full-Sun conditions during the entire month.

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on March 1, 15, and 29.

The scanner instrument operated in the normal Earth scan mode and at an azimuth position of  $35^\circ$  for the entire month. This azimuth position was used to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun conditions. The scanner instrument elevation-beam operation was erratic during the first 7 days of the month, but it became more regular during the rest of the month. Scanner internal calibrations were successfully performed on March 1, 15, and 29.

**NOAA 10 spacecraft—April 1989.** In April 1989 the percentage of data archived to the RAT was 97.23 and to the PAT was 96.68. (See table 3(c).) The  $\beta$  angle increased from about  $26.2^\circ$  at the beginning of the month to about  $33.3^\circ$  by the end of the month. (See figs. 7 and 8.) The spacecraft was operating in full-Sun conditions while the  $\beta$  angle was below  $27^\circ$ .

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on April 12 and 26.

The scanner instrument operated in the normal Earth scan mode for the entire month. The scanner azimuth beam operated at  $35^\circ$  from the beginning of the month until 13:15 UT on April 16 when the azimuth beam was rotated to  $0^\circ$ . The azimuth beam remained at the  $0^\circ$  position for the rest of the month. The azimuth beam had operated at the  $35^\circ$

position to prevent the scanner detectors from scanning the Sun while the spacecraft operated in full-Sun conditions. The scanner instrument elevation-beam operation was somewhat irregular during the first half of the month and became more erratic after the azimuth-beam rotation on April 16. Scanner internal calibrations were successfully performed on April 12 and 26.

**NOAA 10 spacecraft—May 1989.** No data tape was received from NOAA for May 18, 1989. No data were archived to the PAT after May 21 because of the scanner failure. The percentage of data archived to the RAT was 94.24 and to the PAT was 62.32. Excluding days that were not archived, the percentage of data archived to the RAT was 97.38 and to the PAT was 96.60. (See table 3(d).) The  $\beta$  angle increased from about  $33.8^\circ$  at the beginning of the month to about  $38.6^\circ$  by the end of the month. (See figs. 7 and 8.)

The nonscanner instrument operated in the Earth-viewing elevation mode and at a  $180^\circ$  azimuth position for the entire month except during calibrations. Successful nonscanner internal and solar calibrations were performed on May 10 and 24.

The scanner instrument failed at 17:03 UT on May 22. Following the failure the scanner instrument continued to send data, and both housekeeping and radiometric data appear to be valid; however, no view vectors were calculated. Neither internal nor solar calibration sequences were correctly executed after the scanner failure, and the instrument does not operate correctly in any operational scan mode. A detailed analysis of the NOAA 10 scanner failure is presented in reference 8.

The scanner instrument operated in the normal Earth scan mode and at the normal cross-track azimuth position of  $0^\circ$  from the beginning of the month until the scanner failure. Scanner instrument elevation-beam motion was fairly regular during the month and showed no evidence of serious problems prior to the instrument failure. A scanner internal calibration was successfully performed on May 10. In an attempt to restore the scanner instrument to normal operations, a command to normal scan mode was issued on May 24. In preparation for additional testing in June, azimuth angle load commands were issued on May 31. All efforts to restore the instrument to normal operations were unsuccessful. (See ref. 8.)

## Concluding Remarks

In-flight operations and data acquisition have been discussed for the final period of combined

scanner and nonscanner instrument operations of the Earth Radiation Budget Experiment (ERBE). The scanner instrument aboard the NOAA 10 spacecraft (operated by the National Oceanic and Atmospheric Administration) failed on May 22, 1989, and the scanner instrument aboard the Earth Radiation Budget Satellite (ERBS) failed on February 28, 1990. The scanner instrument aboard the NOAA 9 spacecraft failed on January 20, 1987, and this is discussed in NASA RP-1256. Each of the three scanner failures has been different. As a result of the failures, no ERBE scanner data are available after February 28, 1990. The ERBE nonscanner instruments aboard all three spacecraft continue to operate after this date and to provide useful scientific data.

### Data Coverage and Archival

This paper covers 65 data months for the ERBE scanner and nonscanner instruments. This time period includes 37 data months (from February 1987 through February 1990) for the instruments on the ERBS spacecraft and 28 data months (from February 1987 through May 1989) for the instruments on the NOAA 10 spacecraft. Archival of the ERBE data for these months to the raw archival tape (RAT) was completed in January 1992, and archival to the processed archival tape (PAT) was completed in May 1992.

The monthly average archival rate for the ERBE data from the instruments aboard the ERBS spacecraft was nearly 100 percent for both the RAT and PAT. Data coverage was somewhat more variable for the ERBE instruments aboard the NOAA 10 spacecraft. The monthly average rate of NOAA 10 data archived to the RAT was 98 percent, with a minimum of 92 percent in February 1988 and a maximum of 99 percent in June 1988. The monthly average rate of NOAA 10 data archived to the PAT was 97 percent, with a minimum of 92 percent in February 1988 and a maximum of 98 percent in June 1988. These percentages do not include days for which no data were archived.

### Operations During Normal Earth-Viewing Measurements

The nonscanner instruments operated in the nadir (Earth-viewing) elevation mode, and the Solar Monitor Assembly (SMA) shutters remained off during normal operation. The detector and solar port heaters remained on, but all other nonscanner instrument heaters, including the ones that control output of the calibration sources, remained off. The temperatures of the heat sinks and apertures of the

Earth-viewing detectors on all three nonscanner instruments were controlled to nearly constant values during normal operation.

The scanner instruments on the two spacecraft normally operated in the normal Earth scan elevation mode. The instruments on the ERBS spacecraft normally operated at a cross-track azimuth position, although they periodically operated at an azimuth position of  $145^\circ$  during full-Sun conditions. The scanner instrument on the NOAA 10 spacecraft operated at a cross-track azimuth position from April through August each year and at an azimuth position of  $35^\circ$  during the rest of the year when the orbit  $\beta$  angle was below about  $30^\circ$  (where  $\beta$  denotes the angle between the Sun and the orbit angular momentum vectors).

### Calibrations

Internal and solar calibrations of both the non-scanner and scanner instruments on all three spacecraft were generally performed on Wednesdays at 14-day intervals. During ERBS full-Sun periods, regularly scheduled calibrations were not performed. Instead, a set of calibrations was performed immediately prior to and after the full-Sun periods.

During the 37 months of operation of the ERBE instruments aboard the ERBS spacecraft, 96 successful internal calibrations were performed on the scanner instrument. No scanner solar calibrations were performed during that period. On the nonscanner instrument, 99 successful internal calibrations and 93 successful solar calibrations were performed. All but four of the attempted nonscanner solar calibrations were successful. All attempted nonscanner and scanner internal calibrations were successful.

During the 28 months of operation of the ERBE instruments aboard the NOAA 10 spacecraft, 58 successful internal calibrations were performed on the scanner instrument. In addition, 58 successful internal and 54 successful solar calibrations were performed on the nonscanner instrument. All attempted calibrations were successful, although some of the data from the scanner internal calibrations were unusable because of severe scanner elevation-beam rotation problems.

### Solar Environment and Its Effect on Response and Operation of Instruments

The precession rate of the ERBS orbit produces one complete cycle in the Sun's  $\beta$  angle from  $10^\circ$  to  $170^\circ$  over a 72-day period. The Sun is in the orbital plane about every 36 days, and the spacecraft is in full-Sun orbits near the two extremes of  $\beta$ . Solar heating increases during the full-Sun periods, and

housekeeping temperature measurements on both instruments increase significantly. When the Sun is in the orbital plane, the ERBS spacecraft is yawed  $180^\circ$  about the nadir axis to reposition the solar panels to tilt to the Sun's side of the orbit. This yaw rotation also has the effect of reorienting the scanner instrument so that the primary Earth scan motion is always from the dark side to the Sun's side of the orbit. During full-Sun periods, the scanner instrument operates at an azimuth position of  $145^\circ$  to prevent the detectors from directly viewing the Sun.

The  $\beta$  angle of the Sun-synchronous orbit of the NOAA 10 spacecraft varied between about  $20^\circ$  and  $39^\circ$  from February 1987 to May 1989. Variations in instrument housekeeping temperatures during this period were significantly smaller than those on the ERBS spacecraft. The spacecraft was in full Sun when the  $\beta$  angle was less than  $27^\circ$ . During periods of full Sun or near-full Sun, the scanner instrument operated at an azimuth angle of  $35^\circ$  to prevent the detectors from scanning the Sun.

### Anomalies in Operation of Azimuth and Elevation Beams

The azimuth beam on the nonscanner instrument aboard the ERBS spacecraft did not rotate correctly during the solar calibration attempted on February 4, 1987. The azimuth beam on the scanner instrument aboard the ERBS spacecraft did not rotate correctly to the Sun-avoidance position of  $145^\circ$  on June 2, 1988. This was corrected on the following day.

Sluggishness in elevation-beam rotation of the scanner instrument on the ERBS spacecraft continued, but no actual hang-ups (malfunctions) were observed. The primary effect of the sluggishness was misalignment of the detectors with the internal calibration sources. Severe elevation-beam rotation problems occurred on the scanner instrument on the NOAA 10 spacecraft from February through May 1987, and less severe problems continued throughout the operational lifetime of the instrument. Evidence of these problems was first seen in January 1987. (See NASA RP-1279.) Beam hang-up problems were more severe than any observed with the elevation beams of instruments on the ERBS and NOAA 9 spacecraft. New software was developed to process and edit the data to ensure correct computation of detector pointing vectors during periods of elevation-beam rotation anomalies.

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Table 1. Summary Information for RAT and PAT Tapes Archived at the NSSDC  
for February 1987 Through January 1988

[For explanation of abbreviations, see “Nomenclature” on p. 1]

(a) February 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.94	SC INT, all NS CAL's	1	99.26	98.91	SC INT, all NS CAL's
100.00	99.91		2	100.00	99.65	
100.00	99.93		3	99.91	99.43	
100.00	99.91		4	93.07	79.89	
99.98	99.94		5	99.91	97.59	
100.00	99.98		6	99.94	99.17	
100.00	99.96		7	100.00	99.72	
100.00	99.85		8	100.00	99.44	
99.93	99.76		9	92.52	91.44	
99.94	99.89		10	99.94	99.89	
100.00	99.98	SC INT, all NS CAL's	11	99.76	97.43	SC INT, all NS CAL's
99.89	99.80		12	92.70	92.06	
100.00	99.98		13	95.19	94.70	
100.00	99.91		14	85.76	85.70	
99.98	99.80		15	100.00	99.44	
100.00	99.93		16	100.00	99.48	
100.00	99.93		17	100.00	99.83	
100.00	100.00		18	99.89	99.61	
100.00	99.93		19	100.00	99.31	
100.00	99.98		20	100.00	99.28	
99.22	99.11	SC INT, all NS CAL's	21	100.00	99.59	SC INT, all NS CAL's
99.48	99.37		22	100.00	99.50	
100.00	99.83		23	100.00	99.87	
99.44	99.31		24	91.59	88.87	
92.44	92.43		25	100.00	99.59	
100.00	100.00		26	99.43	98.61	
100.00	100.00		27	99.98	99.67	
100.00	99.98		28	99.98	99.24	

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.65	98.17
PAT . . . . .	98.58	97.03
Percentage of data for days in month with data on—		
RAT . . . . .	99.65	98.17
PAT . . . . .	99.58	97.03
Date on which tape was archived at the NSSDC:		
RAT . . . . .	June 1990	Mar. 1991
PAT . . . . .	Nov. 1990	June 1991

Table 1. Continued

(b) March 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.94	SC INT, all NS CAL's	1	99.87	99.67	SC INT, all NS CAL's
98.98	98.96		2	99.00	98.59	
99.83	99.78		3	99.98	99.81	
100.00	99.98		4	99.43	85.78	
100.00	99.93		5	100.00	99.61	
100.00	100.00		6	100.00	99.59	
100.00	99.74		7	100.00	99.54	
99.96	99.78		8	99.94	99.91	
100.00	99.93		9	100.00	99.89	
100.00	99.96		10	100.00	99.89	
100.00	98.09	Yaw turn (+) to (−)	11	100.00	99.37	
100.00	99.85		12	100.00	99.57	
100.00	99.83		13	99.98	99.63	
99.69	99.52		14	99.98	99.83	
100.00	99.98	SC INT, all NS CAL's	15	100.00	99.43	SC INT, all NS CAL's
100.00	99.96		16	100.00	99.98	
100.00	99.91		17	100.00	100.00	
100.00	99.96		18	95.06	85.43	
100.00	99.96		19	92.76	92.67	
100.00	99.94		20	92.57	92.30	
100.00	100.00		21	100.00	99.96	
100.00	99.93		22	99.98	99.87	
100.00	99.93		23	99.98	99.61	
100.00	99.70		24	99.98	99.69	
99.98	99.67		25	100.00	99.69	
100.00	99.93		26	99.31	99.20	
100.00	99.96		27	94.31	93.59	
99.96	99.81		28	100.00	99.70	
100.00	99.94		29	100.00	99.83	
100.00	99.72		30	99.70	99.67	
100.00	99.67		31	100.00	99.43	

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.95	99.09
PAT . . . . .	99.78	98.09
Percentage of data for days in month with data on—		
RAT . . . . .	99.95	99.09
PAT . . . . .	99.78	98.09
Date on which tape was archived at the NSSDC:		
RAT . . . . .	May 1990	Apr. 1991
PAT . . . . .	Jan. 1991	Sept. 1991

Table 1. Continued

(c) April 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.85	SC INT, all NS CAL's	1	99.98	93.00	SC INT, all NS CAL's
100.00	99.30		2	98.13	97.43	
100.00	99.93		3	92.50	92.24	
100.00	99.65		4	85.76	85.65	
100.00	99.85		5	100.00	99.81	
100.00	99.83		6	99.98	99.94	
100.00	99.85		7	99.11	99.11	
100.00	99.78		8	100.00	99.74	
100.00	100.00		9	100.00	100.00	
100.00	99.87		10	100.00	99.85	
100.00	99.94	11	92.63	92.54	All NS CAL's	
100.00	99.96	12	100.00	99.93		
100.00	99.76	13	100.00	99.98		
100.00	99.93	14	92.69	92.67		
100.00	99.89	15	89.72	89.15		
100.00	99.96	16	93.22	92.89		
100.00	98.00	17	100.00	99.93		
100.00	99.98	18	99.83	99.72		
100.00	100.00	19	100.00	99.46		
100.00	99.74	20	100.00	99.93		
100.00	100.00	21	100.00	99.76	SC INT, all NS CAL's	
99.98	99.69	22	100.00	99.59		
100.00	99.93	23	100.00	99.78		
100.00	99.98	24	85.69	85.67		
99.98	99.93	25	100.00	99.98		
100.00	99.98	26	99.54	99.39		
100.00	99.94	27	99.83	99.48		
100.00	99.98	28	99.93	99.83		
100.00	99.85	29	95.07	94.76		
100.00	99.93	30	100.00	99.37		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	97.45
PAT . . . . .	99.81	97.02
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	97.45
PAT . . . . .	99.81	97.02
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Aug. 1990	Apr. 1991
PAT . . . . .	Dec. 1990	Sept. 1991

Table 1. Continued

(d) May 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	100.00	SC INT, all NS CAL's	1	100.00	99.81	SC INT
100.00	99.98		2	100.00	99.80	
100.00	100.00		3	100.00	99.91	
100.00	99.98		4	99.85	99.56	
100.00	99.96		5	99.81	99.63	
100.00	99.91		6	99.54	99.04	
100.00	99.98		7	99.98	99.85	
100.00	99.93		8	99.98	99.70	
100.00	99.96		9	98.94	98.15	
100.00	99.98		10	99.46	99.26	
100.00	99.93		11	99.98	99.70	
100.00	100.00		12	100.00	99.89	
100.00	99.85		13	100.00	99.61	
100.00	99.93		14	100.00	99.59	
100.00	99.98		15	100.00	99.93	
100.00	99.87		16	100.00	99.85	
99.96	99.91		17	99.87	99.87	
100.00	99.98		18	100.00	99.93	
100.00	99.93		19	93.20	93.13	
100.00	99.93		20	98.61	98.39	
100.00	98.13	Yaw turn (+) to (−)	21	100.00	99.98	SC INT
100.00	100.00	22	100.00	99.94		
100.00	99.91	23	93.63	93.61		
100.00	99.83	24	93.76	93.65		
100.00	99.31	25	100.00	99.89		
100.00	99.98	26	93.57	92.46		
100.00	99.67	SC INT, all NS CAL's	27	100.00	99.76	
100.00	99.87	28	93.98	93.61		
100.00	99.43	29	93.17	93.11		
100.00	99.83	30	99.91	99.78		
100.00	99.98	31	100.00	99.48		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	98.62
PAT . . . . .	99.84	98.38
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	98.62
PAT . . . . .	99.84	98.38
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Sept. 1990	May 1991
PAT . . . . .	Dec. 1990	Sept. 1991

Table 1. Continued

(e) June 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.78	SC INT, all NS CAL's	1	99.54	99.50	SC INT, NS INT
100.00	99.94		2	99.94	99.91	
100.00	100.00		3	92.72	92.31	
100.00	100.00		4	88.76	88.57	
100.00	100.00		5	94.89	94.50	
99.98	99.91		6	99.76	99.74	
100.00	99.93		7	100.00	99.91	
100.00	99.96		8	99.98	99.81	
100.00	99.96		9	96.65	96.52	
99.98	99.89		10	100.00	99.57	
100.00	99.87		11	100.00	92.87	
100.00	99.80		12	100.00	99.81	
100.00	99.80		13	99.94	99.59	
100.00	99.72		14	99.98	99.93	
100.00	99.81	15	100.00	98.13		
100.00	99.87	16	93.06	92.74		
100.00	99.98	17	100.00	99.54		
100.00	99.81	SC INT, all NS CAL's	18	96.07	95.93	
100.00	99.94		19	99.94	99.63	
100.00	100.00		20	99.96	99.80	
99.96	99.83		21	100.00	99.44	
100.00	99.91	SC INT, all NS CAL's	22	95.93	95.67	NS INT
99.04	98.70		23	100.00	99.09	
100.00	99.91		24	93.39	92.11	
100.00	99.91		25	99.83	99.52	
100.00	99.93		26	100.00	99.52	
100.00	99.94		27	100.00	99.78	
100.00	99.81		28	100.00	99.91	
100.00	99.61		29	94.35	94.04	
100.00	99.93		30	99.98	99.65	

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.97	98.16
PAT . . . . .	99.85	97.57
Percentage of data for days in month with data on—		
RAT . . . . .	99.97	98.16
PAT . . . . .	99.85	97.57
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Sept. 1990	May 1991
PAT . . . . .	Jan. 1991	July 1991

Table 1. Continued

(f) July 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.96		1	99.98	99.52	
0.00	0.00	Attempted yaw turn	2	100.00	99.46	
0.00	0.00	Yaw turn (−) to (+)	3	100.00	99.57	
100.00	99.98		4	100.00	99.78	
100.00	100.00		5	100.00	99.76	
99.93	99.85		6	93.74	93.56	
100.00	99.91		7	98.96	98.57	
100.00	99.91	SC INT, all NS CAL's	8	87.22	85.44	SC INT, NS INT
100.00	99.94	NS INT	9	70.41	69.61	
100.00	99.98	NS INT	10	88.44	88.39	
100.00	100.00		11	83.37	83.19	
100.00	99.98		12	99.91	99.33	
100.00	99.89		13	94.96	94.69	
100.00	99.96		14	94.43	76.78	
100.00	99.96		15	96.15	92.65	
100.00	100.00		16	96.04	87.91	
100.00	99.98		17	99.31	97.72	
100.00	99.98		18	99.43	99.30	
100.00	99.96		19	100.00	99.96	
100.00	99.96		20	97.80	97.48	
100.00	100.00		21	99.50	99.24	
100.00	100.00	SC INT, all NS CAL's	22	88.89	88.17	SC INT, NS INT
100.00	100.00		23	99.24	99.11	
100.00	100.00		24	99.72	99.17	
100.00	99.91		25	91.17	90.56	
100.00	99.94		26	100.00	98.35	
100.00	99.98		27	99.78	99.72	
100.00	100.00		28	0.00	0.00	
100.00	100.00		29	0.00	0.00	
100.00	99.94		30	96.17	92.93	
100.00	98.15	Yaw turn (+) to (−)	31	100.00	98.63	

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	93.55	89.50
PAT . . . . .	93.46	88.02
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	95.68
PAT . . . . .	99.90	94.09
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Mar. 1989	July 1989
PAT . . . . .	July 1989	Apr. 1991

Table 1. Continued

(g) August 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.81	SC INT, all NS CAL's	1	100.00	98.26	SC INT, NS INT
100.00	99.96		2	99.91	97.54	
100.00	99.91		3	99.98	92.76	
99.94	99.94		4	97.93	90.13	
100.00	100.00		5	99.06	98.72	
100.00	99.94		6	98.26	97.65	
100.00	99.96		7	99.98	99.91	
100.00	100.00		8	100.00	99.20	
100.00	99.96		9	99.57	98.74	
100.00	99.96		10	93.67	93.33	
100.00	100.00	11	99.74	99.44	SC INT, all NS CAL's	
100.00	99.83	12	100.00	99.70		
100.00	99.76	13	99.94	98.96		
100.00	99.81	14	92.57	92.41		
100.00	99.93	15	98.33	98.11		
100.00	99.78	16	100.00	99.96		
100.00	99.89	17	92.69	92.54		
100.00	99.87	18	100.00	99.81		
100.00	99.80	19	99.72	99.37		
99.98	99.87	20	100.00	99.57		
100.00	99.98	21	100.00	99.57	SC INT, all NS CAL's	
100.00	99.96	22	95.59	95.13		
100.00	99.89	23	100.00	97.26		
95.19	94.26	24	92.33	91.89		
100.00	99.76	25	99.98	99.67		
100.00	99.94	26	99.83	98.94		
100.00	100.00	27	97.85	97.50		
100.00	99.87	28	96.09	91.72		
100.00	99.96	29	99.61	99.57		
100.00	99.98	30	100.00	99.80		
100.00	99.96	31	94.52	93.07		

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.84	98.30
PAT . . . . .	99.73	97.11
Percentage of data for days in month with data on—		
RAT . . . . .	99.84	98.30
PAT . . . . .	99.73	97.11
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Dec. 1990	May 1991
PAT . . . . .	Jan. 1991	Oct. 1991



Table 1. Continued

(h) September 1987<sup>a</sup>

ERBS spacecraft		Special events	Day of month	NOAA 10 spacecraft		Special events
Percentage of data on—				Percentage of data on—		
RAT	PAT			RAT	PAT	
100.00	99.87	SC INT, all NS CAL's	1	86.57	79.00	SC INT, all NS CAL's
100.00	99.93		2	100.00	99.57	
100.00	99.91		3	99.87	99.70	
100.00	99.91		4	99.98	99.74	
99.70	99.61		5	99.98	99.76	
100.00	99.85		6	93.33	93.20	
100.00	100.00		7	100.00	99.91	
100.00	99.89	8	84.91	80.78	SC INT, all NS CAL's Yaw turn (−) to (+)	
100.00	99.94	9	100.00	95.02		
100.00	98.19	10	99.65	99.30		
100.00	100.00	11	99.69	99.37		
100.00	99.93	12	100.00	86.46		
100.00	99.96	13	99.98	99.35		
100.00	100.00	14	100.00	98.54		
100.00	100.00	15	94.17	93.85	SC INT, all NS CAL's	
100.00	100.00	16	99.89	99.39		
100.00	99.96	17	82.41	80.93		
100.00	99.96	18	93.57	93.52		
100.00	99.96	19	93.44	91.89		
100.00	95.98	20	93.35	93.09		
100.00	98.94	21	90.70	90.46		
100.00	99.96	22	99.83	99.50	SC INT, all NS CAL's	
100.00	100.00	23	86.50	86.09		
100.00	99.91	24	95.69	95.50		
100.00	99.98	25	99.98	99.74		
100.00	99.98	26	92.26	92.13		
100.00	99.96	27	99.98	99.80		
100.00	99.96	28	100.00	99.69		
100.00	100.00	29	85.87	85.59	SC INT, all NS CAL's	
100.00	100.00	30	99.00	98.50		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.99	95.69
PAT . . . . .	99.72	94.31
Percentage of data for days in month with data on—		
RAT . . . . .	99.99	95.69
PAT . . . . .	99.72	94.31
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Dec. 1990	May 1991
PAT . . . . .	Dec. 1990	Sept. 1991

Table 1. Continued

(i) October 1987<sup>a</sup>

ERBS spacecraft		Special events	Day of month	NOAA 10 spacecraft		Special events
Percentage of data on—				Percentage of data on—		
RAT	PAT			RAT	PAT	
100.00	99.98	SC INT, all NS CAL's  Yaw turn (+) to (−)	1	98.52	98.26	SC INT, all NS CAL's
100.00	100.00		2	100.00	99.83	
100.00	100.00		3	99.80	99.61	
100.00	99.98		4	100.00	99.98	
100.00	100.00		5	100.00	99.74	
100.00	100.00		6	86.41	86.15	
100.00	100.00		7	99.19	98.63	
100.00	99.98		8	100.00	99.57	
100.00	99.93		9	93.17	92.87	
100.00	99.91		10	100.00	99.59	
100.00	100.00		11	97.33	96.52	
100.00	99.91		12	92.67	87.19	
100.00	100.00		13	100.00	99.85	
100.00	99.96		14	98.48	98.30	
100.00	100.00		15	93.89	93.02	
100.00	98.17		16	100.00	99.74	
100.00	99.98		17	98.07	97.98	
100.00	99.98		18	100.00	99.87	
100.00	100.00		19	94.19	92.96	
100.00	100.00		20	99.98	99.94	
100.00	99.98		21	99.81	99.56	
100.00	99.98		22	100.00	99.87	
100.00	100.00		23	100.00	99.98	
100.00	99.98		24	99.76	99.54	
100.00	100.00		25	100.00	99.93	
100.00	100.00		26	99.98	99.76	
100.00	99.98		27	99.76	99.52	
100.00	99.94		28	96.48	95.57	
99.94	99.87		29	100.00	98.85	
100.00	99.94		30	100.00	99.37	
100.00	99.96		31	100.00	99.91	

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	98.31
PAT . . . . .	99.92	97.79
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	98.31
PAT . . . . .	99.92	97.79
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Sept. 1990	July 1991
PAT . . . . .	Jan. 1991	Oct. 1991

Table 1. Continued

(j) November 1987<sup>a</sup>

ERBS spacecraft		Special events	Day of month	NOAA 10 spacecraft		Special events
Percentage of data on—				Percentage of data on—		
RAT	PAT			RAT	PAT	
100.00	99.78	SC INT, all NS CAL's	1	100.00	99.89	SC INT, all NS CAL's
100.00	99.94		2	79.65	78.91	
100.00	99.98		3	99.72	99.50	
100.00	99.96		4	95.65	94.81	
100.00	100.00		5	97.74	97.26	
100.00	99.96		6	100.00	99.89	
100.00	100.00		7	100.00	95.13	
100.00	99.91		8	100.00	99.76	
100.00	100.00		9	99.46	95.11	
100.00	100.00		10	99.67	99.44	
100.00	99.89	Yaw turn (−) to (+)	11	99.20	96.26	SC INT, all NS CAL's
100.00	99.94		12	99.98	99.39	
100.00	99.94		13	99.98	99.81	
100.00	99.85		14	100.00	99.83	
100.00	99.98		15	99.07	99.00	
100.00	99.98		16	99.98	99.89	
100.00	100.00		17	90.26	90.06	
100.00	99.93		18	97.13	91.76	
100.00	98.17		19	99.76	99.65	
99.93	99.85		20	98.48	97.83	
100.00	100.00	SC INT, all NS CAL's	21	97.83	95.46	SC INT, all NS CAL's
100.00	100.00		22	98.33	94.74	
100.00	99.98		23	93.56	88.80	
100.00	99.96		24	99.33	97.54	
100.00	100.00		25	99.91	88.94	
100.00	100.00		26	100.00	99.81	
99.98	99.94		27	93.24	93.11	
100.00	100.00		28	99.70	98.57	
100.00	100.00		29	98.81	98.31	
100.00	100.00		30	98.91	97.56	

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	97.85
PAT . . . . .	99.90	96.20
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	97.85
PAT . . . . .	99.90	96.20
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Dec. 1990	July 1991
PAT . . . . .	Jan. 1991	Oct. 1991

Table 1. Continued

(k) December 1987<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	100.00	SC INT, all NS CAL's	1	94.26	94.13	SC INT, all NS CAL's
99.89	99.85		2	94.28	93.87	
100.00	100.00		3	86.96	86.61	
100.00	99.94		4	100.00	99.78	
100.00	99.98		5	99.98	99.69	
100.00	100.00		6	100.00	99.85	
100.00	100.00		7	100.00	99.85	
100.00	99.98		8	95.24	95.04	
100.00	100.00		9	96.24	94.72	
100.00	100.00		10	99.17	97.76	
100.00	100.00		11	99.94	99.44	
100.00	100.00		12	92.52	92.00	
100.00	100.00		13	94.65	94.44	
100.00	99.98		14	99.35	98.89	
100.00	100.00		15	100.00	99.89	
99.80	99.74	16	99.87	99.52	SC INT, all NS CAL's	
99.93	99.87	17	84.26	79.96		
100.00	99.94	18	100.00	99.96		
100.00	100.00	19	93.63	93.24		
100.00	99.96	20	99.80	99.69		
100.00	99.94	21	100.00	99.94		
100.00	100.00	22	93.26	93.06		
100.00	100.00	23	93.19	92.50		
99.83	99.72	24	97.57	95.83		
100.00	100.00	25	100.00	99.80		
100.00	100.00	26	100.00	99.98		
100.00	99.96	27	93.48	93.41		
100.00	99.98	28	99.74	99.70		
100.00	99.98	29	98.02	97.94		
100.00	98.15	Yaw turn (+) to (−)	30	99.94		99.80
100.00	99.96		31	99.89	99.87	

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.98	96.94
PAT . . . . .	99.90	96.46
Percentage of data for days in month with data on—		
RAT . . . . .	99.98	96.94
PAT . . . . .	99.90	96.46
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Oct. 1990	Aug. 1991
PAT . . . . .	Jan. 1991	Oct. 1991

Table 1. Concluded

(1) January 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.98	SC INT, all NS CAL's	1	79.56	79.43	SC INT, all NS CAL's
100.00	99.94		2	99.93	99.87	
100.00	99.98		3	93.85	93.83	
100.00	99.98		4	98.81	93.31	
100.00	99.94		5	99.98	99.61	
100.00	99.93		6	100.00	99.65	
100.00	99.96		7	99.94	99.37	
100.00	100.00		8	99.98	98.67	
100.00	100.00		9	99.43	98.74	
100.00	100.00		10	99.87	99.56	
100.00	100.00		11	100.00	99.67	
100.00	99.98		12	100.00	99.94	
100.00	100.00		13	100.00	99.65	
100.00	100.00		14	93.11	92.94	
99.98	99.87	15	99.98	99.85	SC INT, all NS CAL's	
100.00	99.91	16	100.00	99.94		
100.00	99.98	17	99.39	99.35		
100.00	99.93	18	99.70	99.61		
98.39	97.57	19	99.69	99.56		
100.00	99.89	20	99.98	99.76		
100.00	99.98	21	99.44	99.02		
100.00	99.89	22	99.87	99.80		
100.00	100.00	23	100.00	99.94		
100.00	99.96	24	100.00	99.89		
99.96	99.91	25	99.94	99.67		
100.00	99.96	26	100.00	99.91		
100.00	94.48	27	99.98	99.41		
100.00	78.52	28	99.98	99.93		
100.00	98.19	29	98.94	98.76		
100.00	100.00	30	99.98	99.89		
100.00	99.96	31	100.00	99.98		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.95	98.75
PAT . . . . .	98.96	98.34
Percentage of data for days in month with data on—		
RAT . . . . .	99.95	98.75
PAT . . . . .	98.96	98.34
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Nov. 1990	Aug. 1991
PAT . . . . .	Mar. 1991	Oct. 1991

Table 2. Summary Information for RAT and PAT Tapes Archived at the NSSDC  
for February 1988 Through January 1989

[For explanation of abbreviations, see “Nomenclature” on p. 1]

(a) February 1988<sup>a</sup>

ERBS spacecraft		Special events	Day of month	NOAA 10 spacecraft		
Percentage of data on—				Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.98	SC INT, all NS CAL's	1	99.98	99.85	SC INT, all NS CAL's
100.00	99.98		2	95.69	95.65	
100.00	100.00		3	99.04	98.20	
100.00	100.00		4	99.93	99.91	
99.83	99.69		5	99.69	98.52	
99.96	99.94		6	98.81	98.74	
99.98	99.93		7	100.00	99.96	
100.00	99.98		8	99.87	99.78	
100.00	100.00		9	99.91	95.44	
100.00	99.98		10	99.70	99.52	
100.00	100.00	11	98.46	98.22	SC INT, all NS CAL's	
99.67	99.59	12	99.98	99.83		
100.00	100.00	13	99.98	99.93		
100.00	99.98	14	100.00	99.94		
100.00	99.98	15	93.02	92.80		
100.00	99.96	16	100.00	99.76		
100.00	99.98	17	100.00	99.67		
100.00	99.96	18	89.07	88.07		
100.00	100.00	19	100.00	99.89		
100.00	100.00	20	98.52	97.94		
100.00	100.00	21	100.00	99.94	SC INT, all NS CAL's	
100.00	99.98	22	95.93	95.78		
100.00	100.00	23	100.00	99.72		
100.00	99.98	24	99.87	99.50		
100.00	100.00	25	65.87	65.85		
100.00	100.00	26	51.61	51.56		
100.00	100.00	27	51.33	51.31		
100.00	99.98	28	54.50	50.59		
99.81	99.65	29	86.24	82.15		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.97	92.31
PAT . . . . .	99.95	91.66
Percentage of data for days in month with data on—		
RAT . . . . .	99.97	92.31
PAT . . . . .	99.95	91.66
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Dec. 1990	Aug. 1991
PAT . . . . .	Mar. 1991	Nov. 1991

Table 2. Continued

(b) March 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.98	SC INT, all NS CAL's	1	100.00	99.94	SC INT, all NS CAL's
100.00	99.98		2	100.00	99.63	
100.00	99.98		3	92.69	92.67	
100.00	100.00		4	99.70	99.63	
100.00	99.98		5	100.00	99.78	
100.00	99.94		6	93.19	92.37	
99.96	99.94		7	90.46	89.91	
100.00	100.00	Yaw turn (+) to (−)	8	99.57	99.46	
100.00	98.13		9	90.63	90.13	
100.00	99.85		10	92.59	92.43	
100.00	99.96		11	94.31	94.19	
100.00	99.94		12	100.00	99.44	
100.00	99.98		13	92.67	92.54	
100.00	100.00		14	100.00	99.74	
100.00	100.00	SC INT, all NS CAL's	15	99.54	99.52	SC INT, all NS CAL's
100.00	100.00		16	99.87	99.44	
100.00	100.00		17	98.46	97.85	
100.00	100.00		18	99.87	99.70	
99.98	99.93		19	84.80	84.74	
99.96	99.87		20	99.72	99.56	
100.00	100.00		21	99.94	99.83	
99.98	99.91		22	99.94	99.83	
100.00	99.96		23	99.91	97.89	
100.00	99.94		24	97.37	97.24	
99.96	99.83		25	99.91	92.13	
100.00	99.91		26	99.85	99.74	
100.00	99.98		27	99.50	99.37	
100.00	100.00		28	99.76	99.56	
100.00	100.00	SC INT, all NS CAL's	29	100.00	99.91	SC INT, all NS CAL's
100.00	99.96		30	100.00	99.63	
100.00	99.89		31	100.00	99.50	

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	97.56
PAT . . . . .	99.90	97.01
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	97.56
PAT . . . . .	99.90	97.01
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Jan. 1991	Aug. 1991
PAT . . . . .	Apr. 1991	Nov. 1991

Table 2. Continued

(c) April 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.91		1	99.11	98.74	
100.00	99.98		2	99.98	99.85	
100.00	99.89		3	100.00	99.81	
100.00	99.94		4	98.93	98.56	
100.00	99.96		5	100.00	99.70	
100.00	99.98		6	93.31	86.15	
100.00	99.93		7	93.06	92.85	
100.00	100.00		8	99.98	99.78	
100.00	99.98		9	100.00	99.94	
100.00	99.94		10	99.41	98.57	
100.00	99.98	11	99.76	99.70	SC INT, all NS CAL's	
100.00	99.98	12	98.87	98.69		
100.00	99.93	13	100.00	99.67		
99.02	98.94	14	100.00	99.87		
100.00	98.17	15	100.00	99.94		
100.00	100.00	16	100.00	99.85		
100.00	100.00	17	100.00	99.81		
100.00	100.00	18	100.00	99.83		
100.00	100.00	19	100.00	99.81		
100.00	100.00	20	100.00	99.50		
100.00	100.00	21	88.31	88.19	SC INT, all NS CAL's	
100.00	100.00	22	99.98	99.78		
100.00	100.00	23	100.00	99.69		
100.00	100.00	24	100.00	99.91		
100.00	99.94	25	100.00	99.87		
100.00	99.98	26	99.98	99.76		
100.00	100.00	27	99.63	99.09		
100.00	100.00	28	100.00	99.93		
100.00	100.00	29	94.28	94.24		
100.00	99.96	30	100.00	99.87		

<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . .	99.97	98.82
PAT . . . . .	99.88	98.37

Percentage of data for days in month with data on—

RAT . . . . .	99.97	98.82
PAT . . . . .	99.88	98.37

Date on which tape was archived at the NSSDC:

RAT . . . . .	Jan. 1991	Aug. 1991
PAT . . . . .	Apr. 1991	Nov. 1991



Table 2. Continued

(d) May 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	100.00	SC INT, all NS CAL's	1	100.00	99.81	SC INT, all NS CAL's
100.00	99.98		2	95.54	95.50	
100.00	100.00		3	100.00	99.07	
99.98	99.93		4	100.00	99.54	
100.00	99.93		5	98.91	97.87	
100.00	99.98		6	99.46	99.24	
100.00	100.00		7	100.00	99.44	
100.00	99.98		8	100.00	99.89	
99.83	99.80		9	100.00	99.78	
100.00	100.00		10	98.46	98.17	
99.74	99.63	Yaw turn (+) to (−)	11	99.54	92.72	SC INT, all NS CAL's
100.00	99.72		12	100.00	99.81	
100.00	99.81		13	100.00	99.65	
100.00	100.00		14	100.00	99.80	
100.00	100.00		15	99.56	99.31	
100.00	100.00		16	100.00	99.89	
100.00	99.98		17	92.37	92.13	
100.00	98.13		18	99.98	99.48	
100.00	99.89		19	100.00	99.59	
99.83	99.76		20	99.91	99.72	
100.00	99.98	SC INT, all NS CAL's	21	98.56	98.37	SC INT, all NS CAL's
100.00	100.00		22	100.00	99.52	
100.00	99.85		23	99.98	99.74	
100.00	99.91		24	99.98	99.94	
99.96	99.72		25	99.24	98.91	
100.00	99.91		26	95.02	94.59	
100.00	99.89		27	98.69	98.50	
100.00	99.96		28	100.00	99.59	
100.00	99.98		29	100.00	99.70	
100.00	99.96		30	100.00	99.70	
100.00	100.00	31	85.33	85.06		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.98	98.73
PAT . . . . .	99.86	98.20
Percentage of data for days in month with data on—		
RAT . . . . .	99.98	98.73
PAT . . . . .	99.86	98.20
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Jan. 1991	Sept. 1991
PAT . . . . .	Mar. 1991	Nov. 1991

Table 2. Continued

(e) June 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	100.00	SC INT, all NS CAL's	1	90.98	90.85	SC INT, all NS CAL's
100.00	99.94		2	99.98	99.13	
100.00	99.94		3	100.00	99.72	
100.00	100.00		4	100.00	99.96	
100.00	99.96		5	100.00	99.72	
100.00	100.00		6	100.00	99.70	
100.00	100.00		7	100.00	99.81	
100.00	99.93		8	100.00	99.30	
100.00	99.91		9	99.98	99.80	
100.00	99.98		10	99.98	99.48	
100.00	100.00	11	100.00	99.61	SC INT, all NS CAL's	
100.00	100.00	12	99.31	98.72		
100.00	99.98	13	98.83	98.57		
100.00	99.98	14	99.72	99.59		
100.00	100.00	15	99.89	99.22		
100.00	99.87	16	99.69	98.52		
100.00	99.94	17	100.00	99.17		
100.00	100.00	18	100.00	99.76		
100.00	99.96	19	100.00	99.50		
100.00	99.96	20	99.63	98.76		
100.00	99.96	21	100.00	99.43	SC INT, all NS CAL's	
100.00	99.94	22	99.93	98.78		
100.00	99.83	23	98.63	98.50		
100.00	100.00	24	100.00	99.83		
100.00	100.00	25	100.00	99.57		
100.00	99.94	26	100.00	99.67		
100.00	100.00	27	100.00	99.59		
100.00	99.98	28	95.91	94.65		
100.00	98.15	29	99.98	99.19		
100.00	100.00	30	98.59	97.93		

<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . .	100.00	99.37
PAT . . . . .	99.91	98.87

Percentage of data for days in month with data on—

RAT . . . . .	100.00	98.37
PAT . . . . .	99.91	98.87

Date on which tape was archived at the NSSDC:

RAT . . . . .	Feb. 1991	Sept. 1991
PAT . . . . .	July 1991	Dec. 1991

Table 2. Continued

(f) July 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	100.00	SC INT, all NS CAL's	1	100.00	99.91	SC INT, all NS CAL's
100.00	100.00		2	99.80	99.33	
100.00	100.00		3	100.00	99.63	
100.00	100.00		4	100.00	99.46	
100.00	100.00		5	99.94	99.15	
100.00	99.98		6	59.59	58.20	
100.00	100.00		7	100.00	97.96	
100.00	100.00		8	99.76	99.19	
100.00	100.00		9	100.00	99.41	
100.00	100.00		10	100.00	99.56	
100.00	99.98		11	100.00	99.70	
100.00	99.98		12	96.43	92.30	
100.00	99.98		13	100.00	99.22	
100.00	100.00		14	91.15	90.61	
100.00	99.96		15	99.91	99.89	
100.00	99.94		16	80.26	80.09	
100.00	100.00		17	94.43	94.20	
100.00	100.00		18	89.96	89.85	
99.98	99.78	19	100.00	99.52	SC INT, all NS CAL's	
100.00	99.98	20	99.31	98.89		
100.00	100.00	21	99.94	99.43		
100.00	99.94	22	93.30	92.69		
100.00	99.94	23	99.98	99.83		
100.00	99.98	24	100.00	99.67		
100.00	100.00	25	99.98	99.61		
100.00	100.00	26	99.89	99.61		
100.00	99.96	27	100.00	99.37		
100.00	92.44	28	99.61	99.52		
100.00	99.98	29	93.69	93.44		
100.00	99.93	30	89.93	89.39		
100.00	99.87	31	100.00	99.94		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	96.35
PAT . . . . .	99.73	95.76
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	96.35
PAT . . . . .	99.73	95.76
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Mar. 1991	Aug. 1991
PAT . . . . .	June 1991	Nov. 1991

Table 2. Continued

(g) August 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.31	SC INT, all NS CAL's	1	91.96	91.67	SC INT, all NS CAL's
100.00	100.00		2	93.30	93.07	
100.00	99.81		3	99.07	98.69	
100.00	99.91		4	99.98	99.50	
100.00	99.91		5	98.78	97.78	
100.00	99.96		6	100.00	99.93	
100.00	99.67		7	100.00	99.81	
99.98	99.78		8	100.00	99.54	
100.00	99.98		9	100.00	99.37	
100.00	100.00		10	100.00	98.00	
100.00	99.96	11	94.00	89.20	SC INT, all NS CAL's	
100.00	99.96	12	99.41	99.28		
100.00	99.94	13	94.11	93.96		
100.00	99.81	14	100.00	99.80		
100.00	99.28	15	78.96	75.78		
100.00	99.98	16	76.81	76.26		
100.00	100.00	17	93.33	93.00		
100.00	99.74	18	86.11	85.70		
100.00	99.70	19	99.72	95.93		
100.00	100.00	20	93.37	91.59		
99.96	98.69	21	98.76	98.67	SC INT, all NS CAL's	
100.00	99.98	22	87.30	87.17		
99.98	99.87	23	95.15	94.96		
100.00	99.61	24	94.41	93.81		
100.00	98.70	25	99.83	99.69		
100.00	99.44	26	99.74	99.48		
100.00	99.93	27	94.83	94.02		
99.96	99.93	28	99.87	99.35		
100.00	99.74	29	100.00	99.80		
100.00	99.54	30	99.69	99.43		
100.00	99.85	SC INT, all NS CAL's	31	100.00	99.63	SC INT, all NS CAL's

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	95.76
PAT . . . . .	99.74	94.96
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	95.76
PAT . . . . .	99.74	94.96
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Mar. 1991	Nov. 1991
PAT . . . . .	May 1991	Feb. 1992

Table 2. Continued

(h) September 1988<sup>a</sup>

ERBS spacecraft		Special events	Day of month	NOAA 10 spacecraft		Special events
Percentage of data on—				Percentage of data on—		
RAT	PAT			RAT	PAT	
100.00	99.93	Yaw turn (−) to (+)	1	99.87	99.65	
100.00	99.94		2	95.41	95.24	
100.00	99.59		3	99.70	99.56	
100.00	99.93		4	100.00	99.33	
100.00	99.78		5	100.00	99.89	
100.00	99.74		6	100.00	99.85	
100.00	93.07		7	100.00	99.76	
100.00	99.87		8	99.89	99.52	
100.00	99.98		9	93.65	93.44	
99.96	99.93		10	99.98	99.80	
100.00	99.83	SC INT, all NS CAL's	11	99.98	98.63	SC INT, all NS CAL's
100.00	99.98		12	99.80	99.61	
100.00	99.87		13	98.22	96.33	
100.00	99.81		14	92.91	85.98	
100.00	99.94		15	99.80	99.46	
100.00	99.98		16	96.48	96.31	
100.00	99.59		17	100.00	99.63	
100.00	99.83		18	99.98	99.65	
96.81	96.74		19	99.44	99.13	
100.00	99.81		20	99.72	99.59	
100.00	99.69	SC INT, all NS CAL's	21	100.00	99.59	SC INT, all NS CAL's
100.00	99.85		22	99.70	99.20	
100.00	99.93		23	100.00	99.37	
100.00	100.00		24	98.04	96.44	
99.98	99.80		25	100.00	99.50	
100.00	99.76		26	99.57	97.57	
100.00	100.00		27	100.00	99.80	
100.00	99.81		28	97.41	96.24	
100.00	100.00		29	100.00	99.67	
99.98	99.87		30	86.48	86.28	

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.89	98.53
PAT . . . . .	99.53	97.80
Percentage of data for days in month with data on—		
RAT . . . . .	99.89	98.53
PAT . . . . .	99.53	97.80
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Mar. 1991	Dec. 1991
PAT . . . . .	June 1991	Mar. 1992

Table 2. Continued

(i) October 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.96	SC INT, all NS CAL's  Yaw turn (+) to (−)   				

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.93	96.29
PAT . . . . .	99.60	95.62
Percentage of data for days in month with data on—		
RAT . . . . .	99.93	96.29
PAT . . . . .	99.60	95.62
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Mar. 1991	Nov. 1991
PAT . . . . .	July 1991	Feb. 1992

Table 2. Continued

(j) November 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
99.89	99.19	SC INT, all NS CAL's	1	97.91	97.61	SC INT, all NS CAL's
100.00	99.89		2	100.00	99.50	
100.00	99.48		3	92.19	91.26	
100.00	99.46		4	94.74	94.30	
100.00	99.59		5	95.56	95.33	
100.00	99.98		6	94.85	94.74	
100.00	99.93		7	100.00	99.85	
100.00	99.15		8	100.00	99.83	
100.00	99.57		9	100.00	99.50	
100.00	99.59		10	92.69	92.48	
100.00	99.94		11	100.00	99.80	
100.00	99.61		12	100.00	99.80	
100.00	99.54		13	94.63	94.31	
100.00	99.89		14	99.57	99.39	
100.00	99.96	15	86.48	86.31		
99.98	94.33	Yaw turn (−) to (+)	16	100.00	99.50	SC INT, all NS CAL's
99.98	99.74		17	99.94	99.83	
100.00	99.98		18	93.19	93.04	
100.00	100.00		19	99.83	99.63	
100.00	100.00	20	100.00	99.72		
100.00	100.00	21	93.35	93.20		
100.00	99.76	22	100.00	99.87		
100.00	99.78	SC INT, all NS CAL's	23	94.31	93.87	
99.94	99.63		24	90.69	90.48	
99.98	99.87		25	99.87	99.72	
100.00	99.93		26	100.00	99.93	
100.00	99.98		27	100.00	99.89	
100.00	99.96		28	99.78	99.50	
100.00	99.91		29	99.87	99.78	
100.00	99.69		30	100.00	99.70	

<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . .	99.99	97.31
PAT . . . . .	99.58	97.06

Percentage of data for days in month with data on—

RAT . . . . .	99.99	97.31
PAT . . . . .	99.58	97.06

Date on which tape was archived at the NSSDC:

RAT . . . . .	Mar. 1991	Dec. 1991
PAT . . . . .	July 1991	Feb. 1992

Table 2. Continued

(k) December 1988<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	100.00	SC INT, all NS CAL's	1	100.00	99.80	SC INT, all NS CAL's
100.00	99.96		2	100.00	99.78	
91.33	91.24		3	85.65	85.37	
100.00	99.83		4	92.87	88.56	
100.00	99.94		5	99.87	99.59	
100.00	99.98		6	99.98	99.83	
100.00	99.93		7	99.78	99.22	
100.00	100.00		8	92.46	92.19	
100.00	99.78		9	99.94	99.81	
99.67	99.41		10	100.00	99.83	
100.00	100.00	11	97.70	97.33	SC INT, all NS CAL's	
100.00	100.00	12	99.98	99.54		
100.00	99.57	13	100.00	99.67		
100.00	99.98	14	99.87	99.02		
100.00	99.70	15	100.00	99.56		
100.00	99.98	16	100.00	99.67		
100.00	99.98	17	99.98	99.20		
100.00	99.96	18	99.54	99.15		
100.00	100.00	19	99.91	99.76		
100.00	99.63	20	100.00	99.67		
100.00	100.00	SC INT, all NS CAL's	21	100.00	99.57	SC INT, all NS CAL's
99.96	99.91	22	99.24	98.63		
100.00	99.91	23	100.00	99.76		
100.00	99.98	24	99.56	99.43		
100.00	99.83	25	100.00	99.85		
100.00	100.00	26	100.00	99.78		
100.00	99.98	27	99.57	99.52		
100.00	96.37	Yaw turn (+) to (−)	28	86.20	85.96	
99.98	99.81		29	100.00	99.74	
100.00	99.19		30	100.00	99.46	
100.00	99.48		31	99.89	99.65	

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.71	98.45
PAT . . . . .	99.46	98.00
Percentage of data for days in month with data on—		
RAT . . . . .	99.71	98.45
PAT . . . . .	99.46	98.00
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Apr. 1991	Nov. 1991
PAT . . . . .	Oct. 1991	Jan. 1992



Table 2. Concluded

(1) January 1989<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.87	SC INT, all NS CAL's	1	99.91	98.74	SC INT, all NS CAL's
100.00	99.69		2	99.07	98.80	
100.00	99.59		3	100.00	99.63	
100.00	99.91		4	100.00	99.63	
100.00	99.15		5	99.93	99.41	
100.00	99.20		6	99.94	99.56	
100.00	99.26		7	100.00	99.74	
99.96	99.89		8	99.98	99.85	
100.00	100.00		9	100.00	93.17	
100.00	99.96		10	100.00	99.81	
100.00	99.44		11	99.98	99.50	
100.00	99.87		12	95.91	95.81	
100.00	99.24		13	95.13	94.78	
100.00	99.98		14	100.00	99.85	
99.94	99.87		15	100.00	99.89	
99.91	99.22		16	99.06	98.94	
100.00	99.96		17	99.91	99.81	
100.00	100.00	SC INT, all NS CAL's	18	94.15	94.04	SC INT, all NS CAL's
100.00	99.93		19	98.94	95.91	
100.00	99.96		20	100.00	99.93	
100.00	99.96		21	99.98	99.81	
100.00	99.61		22	99.89	99.83	
100.00	99.83		23	100.00	99.80	
100.00	99.74		24	100.00	99.83	
100.00	99.93	25	100.00	99.57	SC INT, all NS CAL's	
100.00	94.59	26	92.30	92.07		
100.00	99.81	27	94.17	93.81		
100.00	99.89	28	91.33	90.15		
99.98	99.87	29	100.00	99.76		
100.00	99.96	30	99.98	99.81		
100.00	99.91	31	99.98	99.78		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	99.99	98.69
PAT . . . . .	99.58	98.10
Percentage of data for days in month with data on—		
RAT . . . . .	99.99	98.69
PAT . . . . .	99.58	98.10
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Apr. 1991	Feb. 1992
PAT . . . . .	Oct. 1991	May 1992

Table 3. Summary Information for RAT and PAT Tapes Archived at the NSSDC  
for February 1989 Through February 1990

[For explanation of abbreviations, see “Nomenclature” on p. 1]

(a) February 1989<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.93	SC INT, all NS CAL's	1	99.98	99.57	SC INT, all NS CAL's
100.00	100.00		2	98.78	98.61	
100.00	99.98		3	99.87	99.54	
100.00	99.98		4	100.00	99.69	
100.00	99.98		5	90.50	90.09	
100.00	99.67		6	99.91	99.76	
100.00	100.00		7	99.94	99.57	
100.00	100.00		8	98.94	98.56	
100.00	100.00		9	93.28	93.06	
100.00	99.93		10	99.61	99.43	
100.00	99.89	SC INT, all NS CAL's	11	93.39	93.26	SC INT, all NS CAL's
100.00	99.98		12	100.00	99.93	
100.00	100.00		13	94.98	94.54	
100.00	99.87		14	100.00	99.80	
99.98	99.94		15	100.00	99.20	
100.00	99.67		16	99.31	98.94	
100.00	99.85		17	96.65	96.37	
100.00	99.56		18	100.00	99.80	
100.00	99.83		19	93.89	93.72	
100.00	99.85		20	99.98	99.83	
100.00	99.83	SC INT, all NS CAL's	21	99.98	99.74	SC INT, all NS CAL's
100.00	100.00		22	99.06	98.93	
100.00	100.00		23	99.65	99.17	
100.00	99.96		24	93.17	92.94	
100.00	99.50		25	85.41	85.24	
100.00	99.83		26	100.00	99.85	
100.00	99.98		27	99.87	99.63	
100.00	99.81		28	100.00	99.91	

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	97.72
PAT . . . . .	99.89	97.45
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	97.72
PAT . . . . .	99.89	97.45
Date on which tape was archived at the NSSDC:		
RAT . . . . .	July 1991	Dec. 1991
PAT . . . . .	Oct. 1991	Apr. 1992

Table 3. Continued

(b) March 1989<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.94	SC INT, all NS CAL's	1	99.26	98.94	SC INT, all NS CAL's
100.00	99.98	Yaw turn (+) to (−)	2	100.00	99.91	
100.00	99.72		3	99.98	99.72	
100.00	99.89		4	94.78	94.70	
100.00	99.91		5	98.69	98.50	
100.00	99.96		6	99.98	99.72	
100.00	96.24		7	92.54	92.46	
100.00	99.74		8	100.00	99.35	
100.00	99.94		9	99.98	99.93	
100.00	99.59		10	99.98	97.37	
100.00	99.74		11	93.30	92.91	
100.00	99.98	12	99.35	99.11	SC INT, all NS CAL's	
99.94	99.87	13	90.78	90.52		
100.00	99.52	14	100.00	99.80		
100.00	99.94	15	98.70	98.28		
100.00	99.59	16	93.09	93.04		
100.00	99.96	17	99.83	99.65		
100.00	99.94	18	100.00	99.89		
100.00	99.80	19	100.00	99.80		
100.00	99.96	20	100.00	99.78		
100.00	100.00	21	88.72	88.59		
100.00	99.46	SC INT, all NS CAL's	22	100.00	99.69	SC INT, all NS CAL's
100.00	99.81	23	99.98	99.83		
100.00	99.59	24	98.06	97.74		
100.00	100.00	25	99.98	99.87		
100.00	99.93	26	99.98	99.72		
100.00	100.00	27	100.00	99.89		
100.00	99.39	28	99.56	99.35		
100.00	99.91	SC INT, all NS CAL's	29	100.00	99.44	
100.00	99.78	30	94.33	93.91		
100.00	99.98	31	99.59	98.72		

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	98.08
PAT . . . . .	99.71	97.75
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	98.08
PAT . . . . .	99.71	97.75
Date on which tape was archived at the NSSDC:		
RAT . . . . .	July 1991	Dec. 1991
PAT . . . . .	Oct. 1991	Apr. 1992

Table 3. Continued

(c) April 1989<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.89	SC INT, all NS CAL's  Yaw turn (−) to (+)  <				

	ERBS	NOAA 10
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	97.23
PAT . . . . .	99.73	96.68
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	97.23
PAT . . . . .	99.73	96.68
Date on which tape was archived at the NSSDC:		
RAT . . . . .	Sept. 1990	Dec. 1991
PAT . . . . .	Dec. 1990	May 1992

Table 3. Continued

(d) May 1989<sup>a</sup>

ERBS spacecraft			Day of month	NOAA 10 spacecraft		
Percentage of data on—		Special events		Percentage of data on—		Special events
RAT	PAT			RAT	PAT	
100.00	99.94	SC INT, all NS CAL's	1	99.72	99.07	SC INT, all NS CAL's
100.00	99.69		2	93.28	93.11	
100.00	100.00		3	100.00	99.19	
100.00	99.94		4	97.06	96.04	
100.00	99.76		5	100.00	99.78	
100.00	99.98		6	100.00	99.69	
99.98	99.91		7	86.07	85.91	
100.00	99.94		8	99.07	98.57	
100.00	99.98		9	100.00	99.76	
99.98	99.43		10	100.00	99.59	
100.00	99.57		11	100.00	99.57	
100.00	99.89		12	96.52	96.22	
100.00	99.87		13	99.94	99.74	
100.00	99.85		14	99.98	99.81	
100.00	99.67		15	94.22	94.13	
100.00	99.69		16	99.93	98.78	
100.00	99.98		17	99.98	99.50	
100.00	97.33	Yaw turn (+) to (−)	18	0.00	0.00	All NS CAL's
100.00	99.96		19	74.07	73.96	
99.93	99.48		20	100.00	99.74	
100.00	99.63	21	100.00	99.78		
100.00	99.67	22	100.00	0.00		
100.00	99.70	23	93.15	0.00		
100.00	99.91	SC INT, all NS CAL's	24	100.00	0.00	
100.00	99.35		25	98.81	0.00	
100.00	99.13		26	99.98	0.00	
100.00	99.96		27	99.98	0.00	
100.00	99.98		28	96.48	0.00	
100.00	99.67		29	100.00	0.00	
100.00	99.78		30	93.22	0.00	
100.00	99.39		31	99.98	0.00	

	<u>ERBS</u>	<u>NOAA 10</u>
<sup>a</sup> Percentage of data for all days in month on—		
RAT . . . . .	100.00	94.24
PAT . . . . .	99.68	62.32
Percentage of data for days in month with data on—		
RAT . . . . .	100.00	97.38
PAT . . . . .	99.68	96.60
Date on which tape was archived at the NSSDC:		
RAT . . . . .	July 1991	Jan. 1992
PAT . . . . .	Oct. 1991	May 1992

Table 3. Continued

(e) June 1989<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	99.94	SC INT, all NS CAL's	1
100.00	99.94		2
100.00	99.96		3
100.00	99.57		4
100.00	99.72		5
100.00	99.76		6
100.00	100.00		7
100.00	99.46		8
100.00	99.52		9
100.00	99.83		10
100.00	99.65		11
100.00	99.67		12
100.00	98.74		13
100.00	99.44		14
100.00	99.96	15	
100.00	99.93	SC INT, all NS CAL's	16
100.00	99.94		17
100.00	99.83		18
100.00	99.46		19
100.00	99.83	SC INT, all NS CAL's	20
100.00	99.59		21
99.91	99.72		22
99.94	99.80		23
100.00	99.69	Yaw turn (−) to (+)	24
100.00	99.50		25
100.00	99.98		26
100.00	99.70		27
100.00	97.02		28
100.00	99.93		29
100.00	99.96		30

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 100.00

PAT . . . . . 99.64

Percentage of data for days in month with data on—

RAT . . . . . 100.00

PAT . . . . . 99.64

Date on which tape was archived at the NSSDC:

RAT . . . . . July 1991

PAT . . . . . Dec. 1991

Table 3. Continued

(f) July 1989<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
99.94	99.91	SC INT, all NS CAL's	1
100.00	99.85		2
100.00	99.85		3
100.00	99.96		4
100.00	99.98		5
100.00	99.94		6
100.00	99.98		7
99.98	99.74		8
100.00	99.67		9
100.00	100.00		10
100.00	99.89		11
100.00	99.80		12
100.00	99.91		13
100.00	99.93		14
100.00	99.94		15
100.00	99.94		16
100.00	99.96		17
100.00	99.65	SC INT, all NS CAL's	18
100.00	99.96		19
100.00	99.80		20
100.00	99.69		21
100.00	99.96		22
100.00	100.00		23
100.00	99.91		24
100.00	99.94	Yaw turn (+) to (−)	25
100.00	99.87		26
96.87	93.57		27
100.00	99.69		28
100.00	99.98		29
100.00	99.91		30
100.00	99.83		31

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 99.90

PAT . . . . . 99.68

Percentage of data for days in month with data on—

RAT . . . . . 99.90

PAT . . . . . 99.68

Date on which tape was archived at the NSSDC:

RAT . . . . . Aug. 1991

PAT . . . . . Dec. 1991

Table 3. Continued

(g) August 1989<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	99.96		1
100.00	99.69	SC INT, all NS CAL's	2
100.00	99.31		3
100.00	99.93		4
100.00	99.85		5
99.39	99.33		6
100.00	99.67		7
100.00	99.76		8
100.00	99.11		9
100.00	100.00		10
100.00	99.70		11
100.00	100.00		12
100.00	99.98		13
100.00	99.83	SC INT, all NS CAL's	14
100.00	99.70		15
100.00	100.00		16
100.00	99.96		17
100.00	99.93		18
100.00	100.00		19
100.00	99.94		20
100.00	99.98		21
100.00	99.93		22
100.00	99.93		23
92.48	92.11		24
100.00	99.48	SC INT, all NS CAL's	25
100.00	99.89		26
100.00	99.98		27
100.00	99.63		28
100.00	99.83		29
100.00	99.98	SC INT, all NS CAL's	30
100.00	99.96		31

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 99.74

PAT . . . . . 99.56

Percentage of data for days in month with data on—

RAT . . . . . 99.74

PAT . . . . . 99.56

Date on which tape was archived at the NSSDC:

RAT . . . . . Aug. 1991

PAT . . . . . Dec. 1991



Table 3. Continued

(h) September 1989<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	99.85	Yaw turn (−) to (+)	1
100.00	100.00		2
100.00	99.98		3
100.00	99.83		4
100.00	99.80		5
99.98	96.52		6
100.00	100.00		7
100.00	100.00		8
100.00	100.00		9
100.00	100.00		10
100.00	99.98	SC INT, all NS CAL's	11
100.00	99.96		12
100.00	99.87		13
100.00	99.70		14
100.00	100.00		15
100.00	99.98		16
100.00	99.85		17
100.00	99.94		18
100.00	99.85		19
100.00	100.00		20
100.00	99.87	SC INT, all NS CAL's	21
100.00	99.96		22
100.00	99.96		23
100.00	99.96		24
100.00	99.98		25
99.96	99.63		26
100.00	99.89		27
100.00	100.00		28
100.00	99.96		29
100.00	99.63		30

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . .	100.00
PAT . . . . .	99.80

Percentage of data for days in month with data on—

RAT . . . . .	100.00
PAT . . . . .	99.80

Date on which tape was archived at the NSSDC:

RAT . . . . .	Aug. 1991
PAT . . . . .	Dec. 1991

Table 3. Continued

(i) October 1989<sup>a</sup>

ERBS spacecraft			Day of month	
Percentage of data on—		Special events		
RAT	PAT			
100.00	99.96	SC INT, all NS CAL's  Yaw turn (+) to (−)	1	
100.00	100.00		2	
100.00	100.00		3	
100.00	99.98		4	
99.96	99.89		5	
99.78	98.69		6	
100.00	99.89		7	
100.00	99.98		8	
100.00	99.80		9	
100.00	99.98		10	
100.00	99.98		11	
100.00	100.00		12	
100.00	97.31		13	
100.00	100.00		14	
100.00	99.70		15	
100.00	99.96		16	
100.00	100.00		17	
100.00	99.93		18	
100.00	99.91		19	
99.96	99.89		20	
100.00	99.50		21	
100.00	99.93		22	
100.00	99.91		23	
100.00	99.54		24	
100.00	99.85		SC INT, all NS CAL's	25
99.91	99.41			26
99.91	98.78			27
100.00	99.94			28
100.00	99.87			29
100.00	99.76			30
100.00	99.96			31

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 99.98

PAT . . . . . 99.72

Percentage of data for days in month with data on—

RAT . . . . . 99.98

PAT . . . . . 99.72

Date on which tape was archived at the NSSDC:

RAT . . . . . Sept. 1991

PAT . . . . . Jan. 1992

Table 3. Continued

(j) November 1989<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	99.93	SC INT, all NS CAL's	1
100.00	99.96		2
100.00	99.78		3
100.00	99.96		4
100.00	99.93		5
100.00	99.89		6
100.00	99.65		7
100.00	99.33		8
100.00	99.85		9
100.00	99.93		10
99.98	99.83	Yaw turn (–) to (+)	11
100.00	100.00		12
100.00	99.15		13
100.00	95.48		14
100.00	100.00		15
100.00	99.89		16
100.00	99.83		17
100.00	99.98		18
100.00	99.98		19
98.67	98.59		20
100.00	100.00	SC INT, all NS CAL's	21
100.00	100.00		22
100.00	99.98		23
100.00	100.00		24
100.00	99.98		25
100.00	99.56		26
100.00	97.74		27
100.00	100.00		28
100.00	100.00		29
100.00	99.98		SC INT, all NS CAL's

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 99.95

PAT . . . . . 99.61

Percentage of data for days in month with data on—

RAT . . . . . 99.95

PAT . . . . . 99.61

Date on which tape was archived at the NSSDC:

RAT . . . . . Nov. 1991

PAT . . . . . Jan. 1992

Table 3. Continued

(k) December 1989<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	100.00	SC INT, all NS CAL's   	

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 99.99

PAT . . . . . 99.79

Percentage of data for days in month with data on—

RAT . . . . . 99.99

PAT . . . . . 99.79

Date on which tape was archived at the NSSDC:

RAT . . . . . Nov. 1991

PAT . . . . . Feb. 1992

Table 3. Continued

(1) January 1990<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	99.91	SC INT, all NS CAL's	1
100.00	99.98		2
100.00	99.96		3
100.00	100.00		4
100.00	99.98		5
100.00	99.96		6
100.00	99.93		7
100.00	100.00		8
100.00	99.96		9
100.00	99.96		10
100.00	99.93		11
100.00	99.98		12
100.00	99.98		13
100.00	99.96		14
100.00	99.98		15
100.00	99.98		16
100.00	99.96	SC INT, all NS CAL's	17
100.00	99.89		18
100.00	100.00		19
100.00	99.91		20
100.00	99.98	Yaw turn (−) to (+)	21
100.00	99.98		22
100.00	99.93		23
100.00	99.76		24
100.00	96.50		25
100.00	100.00		26
100.00	99.98		27
100.00	100.00		28
100.00	99.96		29
100.00	99.91		30
100.00	99.98	SC INT, all NS CAL's	31

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 100.00

PAT . . . . . 99.85

Percentage of data for days in month with data on—

RAT . . . . . 100.00

PAT . . . . . 99.85

Date on which tape was archived at the NSSDC:

RAT . . . . . Dec. 1991

PAT . . . . . Mar. 1992

Table 3. Concluded

(m) February 1990<sup>a</sup>

ERBS spacecraft			Day of month
Percentage of data on—		Special events	
RAT	PAT		
100.00	99.98	SC INT, all NS CAL's	1
100.00	99.94		2
100.00	100.00		3
100.00	99.98		4
100.00	99.98		5
100.00	99.85		6
100.00	100.00		7
100.00	99.98		8
100.00	99.96		9
100.00	100.00		10
100.00	99.98		11
100.00	100.00		12
100.00	99.98		13
100.00	99.93		14
100.00	100.00		15
100.00	100.00		16
100.00	99.96		17
100.00	99.94		18
99.39	99.37		19
99.87	99.69		20
100.00	99.98		21
100.00	99.94		22
100.00	99.96	SC INT, all NS CAL's	23
100.00	99.98		24
100.00	99.94		25
100.00	99.98		26
100.00	99.93	All NS CAL's	27
100.00	85.93		28

ERBS<sup>a</sup>Percentage of data for all days in month on—

RAT . . . . . 99.97

PAT . . . . . 99.44

Percentage of data for days in month with data on—

RAT . . . . . 99.97

PAT . . . . . 99.44

Date on which tape was archived at the NSSDC:

RAT . . . . . Dec. 1991

PAT . . . . . Mar. 1992

Table 4. Spectral Characteristics of ERBE Instrument Detectors

(a) Nonscanner detectors

Detector	Spectral range, $\mu\text{m}$
Medium field of view:	
Shortwave . . . . .	0.2 to 5.0
Total . . . . .	0.2 to >50.0
Wide field of view:	
Shortwave . . . . .	0.2 to 5.0
Total . . . . .	0.2 to >50.0
Solar monitor . . . . .	0.2 to >50.0

(b) Scanner detectors

Detector	Spectral range, $\mu\text{m}$
Shortwave . . . . .	0.2 to 4.9
Longwave . . . . .	5.0 to 50.0
Total . . . . .	0.2 to >50.0

Table 5. Operational and Pulse Discrete Commands for Instruments

(a) Nonscanner instrument

1. Mode commands

Command description	Hex value
Azimuth to 0° position	811
Azimuth to 90° position	812
Azimuth to 180° position	813
Azimuth to position A	814
Elevation to internal source (stow)	821
Elevation to solar ports	822
Elevation to nadir (Earth view)	823
SMA shutter cycle on	831
SMA shutter cycle off	832
Detector heaters on	841
Detector heaters off	842
Solar port heaters on	851
Solar port heaters off	852
WFOV blackbody heater off	861
WFOV blackbody heater to temperature 1	862
WFOV blackbody heater to temperature 2	863
MFOV blackbody heater off	871
MFOV blackbody heater to temperature 1	872
MFOV blackbody heater to temperature 2	873
Detector calibration heater off	881
Detector calibration heater to level 1	882
Detector calibration heater to level 2	883
Detector calibration heater to level 3	884
SWICS off	891
SWICS to level 1	892
SWICS to level 2	893
SWICS to level 3	894
Internal calibration sequence	8A1
Solar calibration sequence	8A2



Table 5. Continued

(a) Concluded

## 2. Data storage commands

Command description	Hex value
Address for azimuth position A	419
Address for MFOV total heat sink temperature	422
Address for MFOV SW heat sink temperature	42B
Address for WFOV total heat sink temperature	434
Address for WFOV SW heat sink temperature	43D
Address for solar port temperature	446
Address for MFOV blackbody temperature 1	461
Address for MFOV blackbody temperature 2	463
Address for WFOV blackbody temperature 1	465
Address for WFOV blackbody temperature 2	467
Data, most significant byte	2xx
Data, least significant byte	1xx

## 3. Pulse discrete commands

Command description
Turn on instrument power
Turn off instrument power
Turn on standby heater 2 power (pedestal)
Turn off standby heater 2 power (pedestal)
Turn on pulse bus series relay
Turn off pulse bus series relay
Turn on pulse load bus A power
Turn off pulse load bus A power
Turn on pulse load bus B power
Turn off pulse load bus B power
Turn on standby heater 1 power (head)
Turn off standby heater 1 power (head)
Turn on instrument heater bus power
Turn off instrument heater bus power
Turn on blackbody heater bus power
Turn off blackbody heater bus power
Turn on motor bus
Turn off motor bus
CPU command load
CPU reset

Table 5. Continued

## (b) Scanner instrument

## 1. Mode commands

Command description	Hex value
Azimuth to 0° position	811
Azimuth to 90° position	812
Azimuth to 180° position	813
Azimuth to position A	814
Azimuth to position B	815
Azimuth scan between 0° and position A	816
Scan to stow position	821
Normal Earth scan	822
Nadir Earth scan	823
Short Earth scan	824
MAM scan	825
SWICS off	891
SWICS to level 3	892
SWICS to level 3—modulated	893
SWICS to level 2	894
SWICS to level 2—modulated	895
SWICS to level 1	896
SWICS to level 1—modulated	897
Internal calibration sequence	8A1
Solar calibration sequence	8A2

## 2. Data storage commands

Command description	Hex value
Address for azimuth position A	419
Address for azimuth position B	41B
Data, most significant byte	2xx
Data, least significant byte	1xx

Table 5. Concluded

(b) Concluded

### 3. Pulse discrete commands

Command description
Turn on instrument power
Turn off instrument power
Turn on standby heater power (pedestal)
Turn off standby heater power (pedestal)
Turn on pulse bus series relay
Turn off pulse bus series relay
Turn on pulse load bus A power
Turn off pulse load bus A power
Turn on pulse load bus B power
Turn off pulse load bus B power
Turn on standby heater power (head)
Turn off standby heater power (head)
Turn on blackbody heater bus power
Turn off blackbody heater bus power
CPU command load
CPU reset

Table 6. Scan Profiles of Scanner Instrument<sup>a</sup>

[Footnotes are given at end of table]

Scan position	Normal Earth mode		Short Earth mode		MAM scan mode	
	Scan angle, deg	View	Scan angle, deg	View	Scan angle, deg	View
1	14.00	Space	14.0	Space	163.00	Space
2	↓	↓	↓	↓	↓	↓
3						
4						
5						
6						
7						
8	↓	↓	↓	↓	↓	↓
9	23.00	Earth	23.00	Earth	(b)	Transit
10	25.22	↓	25.22	↓	↓	↓
11	27.45		27.45			
12	29.67		29.67			
13	31.89		31.89			
14	34.12		34.12			
15	36.34		36.34			
16	38.56		38.56			
17	40.79		40.79		↓	↓
18	43.01		43.01		233.00	MAM
19	45.23		45.23		↓	↓
20	47.46		47.46			
21	49.68		49.68			
22	51.90		51.90			
23	54.13		54.13			
24	56.35		56.35			
25	58.57		58.57			
26	60.80		60.80			
27	63.02		63.02			
28	65.24		65.24			
29	67.47		67.47			
30	69.69		69.69			
31	71.91		71.91			
32	74.14		74.14			
33	76.36		76.36			
34	78.58		78.58			
35	80.81		80.81			
36	83.03		83.03			
37	85.25		85.25			
38	87.48		87.48			
39	89.70		89.70			
40	91.92		91.92			
41	94.15		94.15			
42	96.37		96.37			
43	98.59		98.59			
44	100.82	↓	100.82	↓	↓	↓

Table 6. Concluded

Scan position	Normal Earth mode		Short Earth mode		MAM scan mode		
	Scan angle, deg	View	Scan angle, deg	View	Scan angle, deg	View	
45	103.04	Earth	103.04	Earth	233.00	MAM	
46	105.26	↓	105.26	↓	↓	↓	
47	107.49		107.49				
48	109.71		109.71				
49	111.93		111.93				
50	114.16		114.16				
51	116.38		116.38				
52	118.60		118.60				
53	120.83		120.83				
54	123.05		123.05				
55	125.27		125.27				
56	127.50		127.50				
57	129.72		129.72				
58	131.94		131.94				
59	134.17		134.17				
60	136.39		136.39				
61	138.61		138.61				
62	140.84		140.84				
63	143.06		142.00				
64	145.28		↓		(b)	↓	Transit
65	147.51						
66	149.73						
67	151.95						
68	154.18						
69	156.40						
70	158.62						
71	190.00	INT CAL	142.00	Earth	190.00	INT CAL	
72	↓	↓	↓	↓	↓	↓	
73	↓	↓		↓		↓	
74							

<sup>a</sup>Scan angle is the elevation angle  $\phi$  defined in the “Coordinate Systems and In-Flight Geometry” section (p. 4) and is shown in figure 2(b).

<sup>b</sup>Not calculated.

Table 7. List of Data Output by Instruments

(a) Nonscanner instrument

Data description	RAT units	PAT units	Measurement interval, sec	Measurements per 16 sec
WFOV total radiometric	Counts	$W/m^2$	0.8	20
WFOV SW radiometric	↓	↓	↓	↓
MFOV total radiometric	↓	↓	↓	↓
MFOV SW radiometric	↓	↓	↓	↓
Solar monitor radiometric	↓	Not on PAT	↓	↓
Command echo	↓	↓	16	1
Instrument status	↓	↓	↓	↓
Elevation drive position	deg	↓	↓	↓
MFOV total aperture temperature	°C	↓	↓	↓
MFOV SW aperture temperature	↓	↓	↓	↓
Solar monitor heat sink temperature	↓	↓	↓	↓
WFOV total aperture temperature	↓	↓	↓	↓
WFOV SW aperture temperature	↓	↓	↓	↓
MFOV total FOV limiter temperature	↓	↓	↓	↓
MFOV SW FOV limiter temperature	↓	↓	↓	↓
Calibration heater voltage	V	↓	↓	↓
Solar monitor aperture temperature	°C	↓	↓	↓
WFOV total FOV limiter temperature	↓	↓	↓	↓
WFOV SW FOV limiter temperature	↓	↓	↓	↓
Beam electronics board temperature	↓	↓	↓	↓
Solar monitor baffle temperature	↓	↓	↓	↓
Azimuth drive position	deg	↓	8	2
WFOV total heat sink temperature	°C	↓	↓	↓
WFOV SW heat sink temperature	↓	↓	↓	↓
MFOV total heat sink temperature	↓	↓	↓	↓
MFOV SW heat sink temperature	↓	↓	↓	↓
WFOV blackbody temperature	↓	↓	↓	↓
MFOV blackbody temperature	↓	↓	↓	↓
WFOV solar port temperature	↓	↓	↓	↓
MFOV solar port temperature	↓	↓	↓	↓
SWICS photodiode temperature	↓	↓	↓	↓
SWICS amplifier output	V	↓	↓	↓
Temperature reference voltage	V	↓	↓	↓
SAS azimuth sine	Counts	↓	4	4
SAS azimuth cosine	↓	↓	↓	↓
SAS elevation sine	↓	↓	↓	↓
SAS elevation cosine	↓	↓	↓	↓
SAS coarse data	↓	↓	↓	↓

Table 7. Concluded

(b) Scanner instrument

Data description	RAT units	PAT units	Measurement interval, sec	Measurements per 16 sec
Total radiometric	Counts	$\text{W/m}^2/\text{sr}$	0.033	296
LW radiometric	↓	↓	↓	↓
SW radiometric	↓	↓	↓	↓
Scan position	deg	Not on PAT	↓	↓
Command echo	Counts	↓	4	4
Instrument status	Counts	↓	↓	↓
Azimuth position	deg	↓	↓	↓
Total detector temperature	°C	↓	↓	↓
LW detector temperature	↓	↓	↓	↓
SW detector temperature	↓	↓	↓	↓
Total blackbody temperature	↓	↓	↓	↓
LW blackbody temperature	↓	↓	↓	↓
SWICS photodiode temperature	↓	↓	↓	↓
Detector positive bias voltage	V	↓	↓	↓
Detector negative bias voltage	↓	↓	↓	↓
Total drift balance DAC voltage	↓	↓	↓	↓
LW drift balance DAC voltage	↓	↓	↓	↓
SW drift balance DAC voltage	↓	↓	↓	↓
Temperature reference voltage 1	↓	↓	↓	↓
Temperature reference voltage 2	↓	↓	↓	↓
SW MAM temperature	°C	↓	↓	↓
Total MAM baffle temperature	↓	↓	↓	↓
SW MAM baffle temperature	↓	↓	↓	↓
Total MAM temperature	↓	↓	↓	↓
SWICS amplifier output (1)	V	↓	↓	↓
SWICS amplifier output (2)	↓	↓	↓	↓
SWICS amplifier output (3)	↓	↓	↓	↓

Table 8. Normal In-Flight Operational Modes of Instruments

[Power relay: On = Closed; Off = Open]

## (a) Nonscanner

## 1. Operational modes

Mode category	Normal operational mode	
	ERBS	NOAA 10
Azimuth-beam position	0°	180°
Elevation-beam position	0°	0°
	(Nadir)	(Nadir)
SMA shutter operation	Off	Off
Detector heaters	On	On
Solar port heaters	On	On
WFOV blackbody heaters	Off	Off
MFOV blackbody heaters	Off	Off
Detector calibration heater	Off	Off
SW internal calibration source	Off	Off
Internal calibration sequence	Not in	Not in
Solar calibration sequence	Not in	Not in

## 2. Data for mode commands

Operational mode	Temperature, °C	
	ERBS	NOAA 10
WFOV shortwave heat sink temperature	33.6	33.6
WFOV total heat sink temperature	33.6	33.6
MFOV shortwave heat sink temperature	33.6	33.6
MFOV total heat sink temperature	33.6	33.6
WFOV BB temperature at level 1	20.0	20.0
WFOV BB temperature at level 2	20.0	20.0
MFOV BB temperature at level 1	20.0	20.0
MFOV BB temperature at level 2	20.0	20.0
Solar port temperature	20.5	20.5

## 3. Bi-level switch indicators

Description	Normal operations	
	ERBS	NOAA 10
Instrument power	On	On
Pulse load bus A	On	On
Pulse load bus B	Off	Off
Standby heater power	Off	Off
Instrument heater power <sup>a</sup>	On	On
Calibration heater bias power <sup>a</sup>	On	On
Azimuth motor power <sup>a</sup>	Off	Off
Elevation motor power <sup>a</sup>	Off	Off

<sup>a</sup>Controlled by mode commands.



Table 8. Concluded

(b) Scanner

1. Operational modes

Mode category	Normal operational mode	
	ERBS	NOAA 10
Azimuth-beam position	180°	0°
Scan mode	Normal Earth	Normal Earth
SW internal CAL source	Off	Off
Internal calibration sequence	Not in	Not in
Solar calibration sequence	Not in	Not in

2. Bi-level switch indicators

Description	Normal operations	
	ERBS	NOAA 10
Instrument power	On	On
Pulse load bus A	On	On
Pulse load bus B	Off	Off
Standby heater power (pedestal)	↓	↓
Blackbody CAL heater power		
Standby heater power (head)		
Azimuth motor power <sup>a</sup>	↓	↓
Elevation motor power <sup>a</sup>	On	On

<sup>a</sup>Controlled by mode commands.

Table 9. Operational Commands Executed by Nonscanner Instrument on ERBS Spacecraft  
From February 1987 Through February 1990

(a) February 1987 through January 1988

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin azimuth angle load commands for solar calibration.				
02/04/87	03:11:12	191.20	419	Address azimuth position A
	03:11:44	191.73	2xx	Data command, high byte
	03:12:48	192.80	1xx	Data command, low byte
End azimuth angle load commands (A = 77.78°).				
Begin preinternal calibration sequence.				
02/04/87	10:16:48	616.80	821	Elevate to internal source (stow)
	10:17:20	617.33	862	WFOV BB heater on at temp. 1
	10:17:52	617.87	872	MFOV BB heater on at temp. 1
	11:53:52	713.87	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/04/87	11:54:56	714.93	8A1	Begin internal calibration
	11:55:28	715.47	881	Detector bias heater off
	11:56:00	716.00	852	Solar port heaters off
	11:56:32	716.53	821	Elevate to internal source (stow)
	11:57:04	717.07	851	Solar port heaters on
	11:59:12	719.20	882	Detector bias heater on at level 1
	12:01:20	721.33	892	SWICS on at level 3
	12:04:32	724.53	881	Detector bias heater off
	12:08:16	728.27	862	WFOV BB heater on at temp. 1
	12:08:48	728.80	872	MFOV BB heater on at temp. 1
	12:09:52	729.87	891	SWICS off
	12:23:12	743.20	883	Detector bias heater on at level 2
	12:25:20	745.33	893	SWICS on at level 2
	12:28:32	748.53	881	Detector bias heater off
	12:32:16	752.27	863	WFOV BB heater on at temp. 2
	12:32:48	752.80	873	MFOV BB heater on at temp. 2
	12:33:52	753.87	891	SWICS off
	12:47:12	767.20	884	Detector bias heater on at level 3
	12:49:20	769.33	894	SWICS on at level 1
	12:51:28	771.47	881	Detector bias heater off
	12:54:08	774.13	852	Solar port heaters off
	12:55:12	775.20	861	WFOV BB heater off
	12:55:44	775.73	871	MFOV BB heater off
	12:56:16	776.27	851	Solar port heaters on
	12:56:48	776.80	891	SWICS off
End internal calibration sequence.				
02/04/87	13:03:44	783.73	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
02/04/87	13:11:12	791.20	822	Elevate to solar ports (Sun)
	13:11:44	791.73	814	Azimuth to position A
	13:12:16	792.27	883	Detector bias heater on at level 2
	13:22:24	802.40	831	SMA shutter cycle on

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/04/87	14:03:28	843.47	832	SMA shutter cycle off
	14:04:32	844.53	811	Azimuth to 0°
	14:05:04	845.07	881	Detector bias heater off
	14:14:40	854.67	823	Elevate to nadir (Earth)
Problems with azimuth rotation; solar calibration unsuccessful. End modified solar calibration sequence. Begin azimuth angle load commands for solar calibration.				
02/15/87	02:28:32	148.53	419	Address azimuth position A
	02:29:04	149.07	2xx	Data command, high byte
	02:30:08	150.13	1xx	Data command, low byte
End azimuth angle load commands (A = 29.93°). Begin preinternal calibration sequence.				
02/15/87	08:37:04	517.07	821	Elevate to internal source (stow)
	08:37:36	517.60	862	WFOV BB heater on at temp. 1
	08:38:08	518.13	872	MFOV BB heater on at temp. 1
	10:14:08	614.13	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
02/15/87	10:15:12	615.20	8A1	Begin internal calibration
	10:15:44	615.73	881	Detector bias heater off
	10:16:16	616.27	852	Solar port heaters off
	10:16:48	616.80	821	Elevate to internal source (stow)
	10:17:20	617.33	851	Solar port heaters on
	10:19:28	619.47	882	Detector bias heater on at level 1
	10:21:36	621.60	892	SWICS on at level 3
	10:24:48	624.80	881	Detector bias heater off
	10:28:32	628.53	862	WFOV BB heater on at temp. 1
	10:29:04	629.07	872	MFOV BB heater on at temp. 1
	10:30:08	630.13	891	SWICS off
	10:43:28	643.47	883	Detector bias heater on at level 2
	10:45:36	645.60	893	SWICS on at level 2
	10:48:48	648.80	881	Detector bias heater off
	10:52:32	652.53	863	WFOV BB heater on at temp. 2
	10:53:04	653.07	873	MFOV BB heater on at temp. 2
	10:54:08	654.13	891	SWICS off
	11:07:28	667.47	884	Detector bias heater on at level 3
	11:09:36	669.60	894	SWICS on at level 1
	11:11:44	671.73	881	Detector bias heater off
	11:14:24	674.40	852	Solar port heaters off
	11:15:28	675.47	861	WFOV BB heater off
	11:16:00	676.00	871	MFOV BB heater off
	11:16:32	676.53	851	Solar port heaters on
	11:17:04	677.07	891	SWICS off
End internal calibration sequence.				
02/15/87	11:24:00	684.00	823	Elevate to nadir (Earth)

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin modified solar calibration sequence.				
02/15/87	11:41:04	701.07	822	Elevate to solar ports (Sun)
	11:41:36	701.60	814	Azimuth to position A
	11:42:08	702.13	883	Detector bias heater on at level 2
	11:52:16	712.27	831	SMA shutter cycle on
	12:33:20	753.33	832	SMA shutter cycle off
	12:34:24	754.40	811	Azimuth to 0°
	12:34:56	754.93	881	Detector bias heater off
	12:44:32	764.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/26/87	01:48:00	108.00	419	Address azimuth position A
	01:48:32	108.53	2xx	Data command, high byte
	01:50:08	110.13	1xx	Data command, low byte
End azimuth angle load commands (A = 32.93°).				
Begin preinternal calibration sequence.				
02/26/87	09:38:24	578.40	821	Elevate to internal source (stow)
	09:38:56	578.93	862	WFOV BB heater on at temp. 1
	09:39:28	579.47	872	MFOV BB heater on at temp. 1
	11:15:28	675.47	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/26/87	11:16:32	676.53	8A1	Begin internal calibration
	11:17:04	677.07	881	Detector bias heater off
	11:17:36	677.60	852	Solar port heaters off
	11:18:08	678.13	821	Elevate to internal source (stow)
	11:18:40	678.67	851	Solar port heaters on
	11:20:48	680.80	882	Detector bias heater on at level 1
	11:22:56	682.93	892	SWICS on at level 3
	11:26:08	686.13	881	Detector bias heater off
	11:29:52	689.87	862	WFOV BB heater on at temp. 1
	11:30:24	690.40	872	MFOV BB heater on at temp. 1
	11:31:28	691.47	891	SWICS off
	11:44:48	704.80	883	Detector bias heater on at level 2
	11:46:56	706.93	893	SWICS on at level 2
	11:50:08	710.13	881	Detector bias heater off
	11:53:52	713.87	863	WFOV BB heater on at temp. 2
	11:54:24	714.40	873	MFOV BB heater on at temp. 2
	11:55:28	715.47	891	SWICS off
	12:08:48	728.80	884	Detector bias heater on at level 3
	12:10:56	730.93	894	SWICS on at level 1
	12:13:04	733.07	881	Detector bias heater off
	12:15:44	735.73	852	Solar port heaters off
	12:16:48	736.80	861	WFOV BB heater off
	12:17:20	737.33	871	MFOV BB heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/26/87	12:17:52	737.87	851	Solar port heaters on
	12:18:24	738.40	891	SWICS off
End internal calibration sequence.				
02/26/87	12:25:20	745.33	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
02/26/87	12:32:48	752.80	822	Elevate to solar ports (Sun)
	12:33:20	753.33	814	Azimuth to position A
	12:33:52	753.87	883	Detector bias heater on at level 2
	12:44:00	764.00	831	SMA shutter cycle on
	13:24:32	804.53	832	SMA shutter cycle off
	13:25:36	805.60	811	Azimuth to 0°
	13:26:08	806.13	881	Detector bias heater off
	13:35:44	815.73	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/04/87	04:03:28	243.47	419	Address azimuth position A
	04:04:00	244.00	2xx	Data command, high byte
	04:05:04	245.07	1xx	Data command, low byte
End azimuth angle load commands ( $A = 57.60^\circ$ ).				
Begin preinternal calibration sequence.				
03/04/87	09:11:12	551.20	821	Elevate to internal source (stow)
	09:11:44	551.73	862	WFOV BB heater on at temp. 1
	09:12:16	552.27	872	MFOV BB heater on at temp. 1
	10:48:16	648.27	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/04/87	10:49:20	649.33	8A1	Begin internal calibration
	10:49:52	649.87	881	Detector bias heater off
	10:50:24	650.40	852	Solar port heaters off
	10:50:56	650.93	821	Elevate to internal source (stow)
	10:51:28	651.47	851	Solar port heaters on
	10:53:36	653.60	882	Detector bias heater on at level 1
	10:55:44	655.73	892	SWICS on at level 3
	10:58:56	658.93	881	Detector bias heater off
	11:02:40	662.67	862	WFOV BB heater on at temp. 1
	11:03:12	663.20	872	MFOV BB heater on at temp. 1
	11:04:16	664.27	891	SWICS off
	11:17:36	677.60	883	Detector bias heater on at level 2
	11:19:44	679.73	893	SWICS on at level 2
	11:22:56	682.93	881	Detector bias heater off
	11:26:40	686.67	863	WFOV BB heater on at temp. 2
	11:27:12	687.20	873	MFOV BB heater on at temp. 2
	11:28:16	688.27	891	SWICS off
	11:41:36	701.60	884	Detector bias heater on at level 3
	11:43:44	703.73	894	SWICS on at level 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/04/87	11:45:52	705.87	881	Detector bias heater off
	11:48:32	708.53	852	Solar port heaters off
	11:49:36	709.60	861	WFOV BB heater off
	11:50:08	710.13	871	MFOV BB heater off
	11:50:40	710.67	851	Solar port heaters on
	11:51:12	711.20	891	SWICS off
End internal calibration sequence.				
03/04/87	11:58:08	718.13	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
03/04/87	12:05:36	725.60	822	Elevate to solar ports (Sun)
	12:06:08	726.13	814	Azimuth to position A
	12:06:40	726.67	883	Detector bias heater on at level 2
	12:16:48	736.80	831	SMA shutter cycle on
	12:57:52	777.87	832	SMA shutter cycle off
	12:58:56	778.93	811	Azimuth to 0°
	12:59:28	779.47	881	Detector bias heater off
	13:09:04	789.07	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
03/11/87	16:38:07			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
03/18/87	04:21:36	261.60	419	Address azimuth position A
	04:22:08	262.13	2xx	Data command, high byte
	04:23:44	263.73	1xx	Data command, low byte
End azimuth angle load commands ( $A = 61.50^\circ$ ).				
Begin preinternal calibration sequence.				
03/18/87	09:20:16	560.27	821	Elevate to internal source (stow)
	09:20:48	560.80	862	WFOV BB heater on at temp. 1
	09:21:20	561.33	872	MFOV BB heater on at temp. 1
	10:57:20	657.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/18/87	10:58:24	658.40	8A1	Begin internal calibration
	10:58:56	658.93	881	Detector bias heater off
	10:59:28	659.47	852	Solar port heaters off
	11:00:00	660.00	821	Elevate to internal source (stow)
	11:00:32	660.53	851	Solar port heaters on
	11:02:40	662.67	882	Detector bias heater on at level 1
	11:04:48	664.80	892	SWICS on at level 3
	11:08:00	668.00	881	Detector bias heater off
	11:11:44	671.73	862	WFOV BB heater on at temp. 1
	11:12:16	672.27	872	MFOV BB heater on at temp. 1
	11:13:20	673.33	891	SWICS off
	11:26:40	686.67	883	Detector bias heater on at level 2
	11:28:48	688.80	893	SWICS on at level 2
	11:32:00	692.00	881	Detector bias heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/18/87	11:35:44	695.73	863	WFOV BB heater on at temp. 2
	11:36:16	696.27	873	MFOV BB heater on at temp. 2
	11:37:20	697.33	891	SWICS off
	11:50:40	710.67	884	Detector bias heater on at level 3
	11:52:48	712.80	894	SWICS on at level 1
	11:54:56	714.93	881	Detector bias heater off
	11:57:36	717.60	852	Solar port heaters off
	11:58:40	718.67	861	WFOV BB heater off
	11:59:12	719.20	871	MFOV BB heater off
	11:59:44	719.73	851	Solar port heaters on
	12:00:16	720.27	891	SWICS off
End internal calibration sequence.				
03/18/87	12:07:12	727.20	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
03/18/87	12:14:08	734.13	822	Elevate to solar ports (Sun)
	12:14:40	734.67	814	Azimuth to position A
	12:15:12	735.20	883	Detector bias heater on at level 2
	12:25:20	745.33	831	SMA shutter cycle on
	13:06:24	786.40	832	SMA shutter cycle off
	13:07:28	787.47	811	Azimuth to 0°
	13:08:00	788.00	881	Detector bias heater off
	13:17:36	797.60	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin BB set point temperature load commands (temp. 1 = 28°C; temp. 2 = 31.2°C).				
3/27/87	16:47:44	1007.73	461	Address MF BB temp. 1
	16:48:16	1008.27	2xx	Data command, high byte
	16:49:20	1009.33	1xx	Data command, low byte
	16:50:24	1010.40	465	Address WF BB temp. 1
	16:50:56	1010.93	2xx	Data command, high byte
	16:52:00	1012.00	1xx	Data command, low byte
	16:53:36	1013.60	463	Address MF BB 2
	16:54:08	1014.13	2xx	Data command, high byte
	16:54:40	1014.67	1xx	Data command, low byte
	16:55:12	1015.20	467	Address WF BB temp. 2
	16:55:44	1015.73	2xx	Data command, high byte
	16:56:16	1016.27	1xx	Data command, low byte
End BB set point temperature load commands.				
Begin azimuth angle load commands for solar calibration.				
04/01/87	00:28:32	28.53	419	Address azimuth position A
	00:29:04	29.07	2xx	Data command, high byte
	00:30:08	30.13	1xx	Data command, low byte
End azimuth angle load commands (A = 28.80°).				
Begin preinternal calibration sequence.				
04/01/87	10:38:08	638.13	821	Elevate to internal source (stow)
	10:38:40	638.67	862	WFOV BB heater on at temp. 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/01/87	10:39:12	639.20	872	MFOV BB heater on at temp. 1
	12:14:40	734.67	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
04/01/87	12:15:44	735.73	8A1	Begin internal calibration
	12:16:16	736.27	881	Detector bias heater off
	12:16:48	736.80	852	Solar port heaters off
	12:17:20	737.33	821	Elevate to internal source (stow)
	12:17:52	737.87	851	Solar port heaters on
	12:20:00	740.00	882	Detector bias heater on at level 1
	12:22:08	742.13	892	SWICS on at level 3
	12:25:20	745.33	881	Detector bias heater off
	12:29:04	749.07	862	WFOV BB heater on at temp. 1
	12:29:36	749.60	872	MFOV BB heater on at temp. 1
	12:30:40	750.67	891	SWICS off
	12:44:00	764.00	883	Detector bias heater on at level 2
	12:46:08	766.13	893	SWICS on at level 2
	12:49:20	769.33	881	Detector bias heater off
	12:53:04	773.07	863	WFOV BB heater on at temp. 2
	12:53:36	773.60	873	MFOV BB heater on at temp. 2
	12:54:40	774.67	891	SWICS off
	13:08:00	788.00	884	Detector bias heater on at level 3
	13:10:08	790.13	894	SWICS on at level 1
	13:12:16	792.27	881	Detector bias heater off
	13:14:56	794.93	852	Solar port heaters off
	13:16:00	796.00	861	WFOV BB heater off
	13:16:32	796.53	871	MFOV BB heater off
	13:17:04	797.07	851	Solar port heaters on
	13:17:36	797.60	891	SWICS off
End internal calibration sequence.				
04/01/87	13:25:04	805.07	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
04/01/87	13:32:00	812.00	822	Elevate to solar ports (Sun)
	13:32:32	812.53	814	Azimuth to position A
	13:33:04	813.07	883	Detector bias heater on at level 2
	13:43:12	823.20	831	SMA shutter cycle on
	14:24:16	864.27	832	SMA shutter cycle off
	14:25:20	865.33	811	Azimuth to 0°
	14:25:52	865.87	881	Detector bias heater off
	14:35:28	875.47	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
04/15/87	02:54:08	174.13	419	Address azimuth position A
	02:55:12	175.20	2xx	Data command, high byte



Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/15/87	02:55:44	175.73	1xx	Data command, low byte
End azimuth angle load commands ( $A = 103.13^\circ$ ). Begin preinternal calibration sequence.				
04/15/87	09:35:44	575.73	821	Elevate to internal source (stow)
	09:36:16	576.27	862	WFOV BB heater on at temp. 1
	09:36:48	576.80	872	MFOV BB heater on at temp. 1
	11:12:48	672.80	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
04/15/87	11:13:52	673.87	8A1	Begin internal calibration
	11:14:24	674.40	881	Detector bias heater off
	11:14:56	674.93	852	Solar port heaters off
	11:15:28	675.47	821	Elevate to internal source (stow)
	11:16:00	676.00	851	Solar port heaters on
	11:18:08	678.13	882	Detector bias heater on at level 1
	11:20:16	680.27	892	SWICS on at level 3
	11:23:28	683.47	881	Detector bias heater off
	11:27:12	687.20	862	WFOV BB heater on at temp. 1
	11:27:44	687.73	872	MFOV BB heater on at temp. 1
	11:28:48	688.80	891	SWICS off
	11:42:08	702.13	883	Detector bias heater on at level 2
	11:44:16	704.27	893	SWICS on at level 2
	11:47:28	707.47	881	Detector bias heater off
	11:51:12	711.20	863	WFOV BB heater on at temp. 2
	11:51:44	711.73	873	MFOV BB heater on at temp. 2
	11:52:48	712.80	891	SWICS off
	12:06:08	726.13	884	Detector bias heater on at level 3
	12:08:16	728.27	894	SWICS on at level 1
	12:10:24	730.40	881	Detector bias heater off
	12:13:04	733.07	852	Solar port heaters off
	12:14:08	734.13	861	WFOV BB heater off
	12:14:40	734.67	871	MFOV BB heater off
	12:15:12	735.20	851	Solar port heaters on
	12:15:44	735.73	891	SWICS off
End internal calibration sequence.				
04/15/87	12:22:40	742.67	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
04/15/87	12:30:08	750.13	822	Elevate to solar ports (Sun)
	12:30:40	750.67	814	Azimuth to position A
	12:31:12	751.20	883	Detector bias heater on at level 2
	12:41:20	761.33	831	SMA shutter cycle on
	13:22:24	802.40	832	SMA shutter cycle off
	13:23:28	803.47	811	Azimuth to $0^\circ$
	13:24:00	804.00	881	Detector bias heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/15/87	13:33:36	813.60	823	Elevate to nadir (Earth)
Unsuccessful solar calibration; incorrect azimuth angle and incorrect time of calibration. End modified solar calibration sequence.				
04/17/87	14:21:19			Yaw maneuver to $X$ -axis positive
Begin azimuth angle load commands for solar calibration.				
04/29/87	02:47:44	167.73	419	Address azimuth position A
	02:48:16	168.27	2xx	Data command, high byte
	02:49:20	169.33	1xx	Data command, low byte
End azimuth angle load commands ( $A = 54.83^\circ$ ). Begin preinternal calibration sequence.				
04/29/87	09:08:00	548.00	821	Elevate to internal source (stow)
	09:08:32	548.53	862	WFOV BB heater on at temp. 1
	09:09:36	549.60	872	MFOV BB heater on at temp. 1
	10:45:04	645.07	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
04/29/87	10:46:08	646.13	8A1	Begin internal calibration
	10:46:40	646.67	881	Detector bias heater off
	10:47:12	647.20	852	Solar port heaters off
	10:47:44	647.73	821	Elevate to internal source (stow)
	10:48:16	648.27	851	Solar port heaters on
	10:50:24	650.40	882	Detector bias heater on at level 1
	10:52:32	652.53	892	SWICS on at level 3
	10:55:44	655.73	881	Detector bias heater off
	10:59:28	659.47	862	WFOV BB heater on at temp. 1
	11:00:00	660.00	872	MFOV BB heater on at temp. 1
	11:01:04	661.07	891	SWICS off
	11:14:24	674.40	883	Detector bias heater on at level 2
	11:16:32	676.53	893	SWICS on at level 2
	11:19:44	679.73	881	Detector bias heater off
	11:23:28	683.47	863	WFOV BB heater on at temp. 2
	11:24:00	684.00	873	MFOV BB heater on at temp. 2
	11:25:04	685.07	891	SWICS off
	11:38:24	698.40	884	Detector bias heater on at level 3
	11:40:32	700.53	894	SWICS on at level 1
	11:42:40	702.67	881	Detector bias heater off
	11:45:20	705.33	852	Solar port heaters off
	11:46:24	706.40	861	WFOV BB heater off
	11:46:56	706.93	871	MFOV BB heater off
	11:47:28	707.47	851	Solar port heaters on
	11:48:00	708.00	891	SWICS off
End internal calibration sequence.				
04/29/87	11:54:56	714.93	823	Elevate to nadir (Earth)

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin modified solar calibration sequence.				
04/29/87	12:02:24	722.40	822	Elevate to solar ports (Sun)
	12:02:56	722.93	814	Azimuth to position A
	12:03:28	723.47	883	Detector bias heater on at level 2
	12:13:36	733.60	831	SMA shutter cycle on
	12:54:40	774.67	832	SMA shutter cycle off
	12:55:44	775.73	811	Azimuth to 0°
	12:56:16	776.27	881	Detector bias heater off
	13:05:52	785.87	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
05/13/87	00:30:08	30.13	419	Address azimuth position A
	00:30:40	30.67	2xx	Data command, high byte
	00:31:44	31.73	1xx	Data command, low byte
End azimuth angle load commands (A = 62.33°).				
Begin preinternal calibration sequence.				
05/13/87	08:47:12	527.20	821	Elevate to internal source (stow)
	08:47:44	527.73	862	WFOV BB heater on at temp. 1
	08:48:16	528.27	872	MFOV BB heater on at temp. 1
	10:24:16	624.27	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
05/13/87	10:25:20	625.33	8A1	Begin internal calibration
	10:25:52	625.87	881	Detector bias heater off
	10:26:24	626.40	852	Solar port heaters off
	10:26:56	626.93	821	Elevate to internal source (stow)
	10:27:28	627.47	851	Solar port heaters on
	10:29:36	629.60	882	Detector bias heater on at level 1
	10:31:44	631.73	892	SWICS on at level 3
	10:34:56	634.93	881	Detector bias heater off
	10:38:40	638.67	862	WFOV BB heater on at temp. 1
	10:39:12	639.20	872	MFOV BB heater on at temp. 1
	10:40:16	640.27	891	SWICS off
	10:53:36	653.60	883	Detector bias heater on at level 2
	10:55:44	655.73	893	SWICS on at level 2
	10:58:56	658.93	881	Detector bias heater off
	11:02:40	662.67	863	WFOV BB heater on at temp. 2
	11:03:12	663.20	873	MFOV BB heater on at temp. 2
	11:04:16	664.27	891	SWICS off
	11:17:36	677.60	884	Detector bias heater on at level 3
	11:19:44	679.73	894	SWICS on at level 1
	11:21:52	681.87	881	Detector bias heater off
	11:24:32	684.53	852	Solar port heaters off
	11:25:36	685.60	861	WFOV BB heater off
	11:26:08	686.13	871	MFOV BB heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/13/87	11:26:40	686.67	851	Solar port heaters on
	11:27:12	687.20	891	SWICS off
End internal calibration sequence.				
05/13/87	11:34:08	694.13	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
05/13/87	11:41:36	701.60	822	Elevate to solar ports (Sun)
	11:42:08	702.13	814	Azimuth to position A
	11:42:40	702.67	883	Detector bias heater on at level 2
	11:52:48	712.80	831	SMA shutter cycle on
	12:33:20	753.33	832	SMA shutter cycle off
	12:34:24	754.40	811	Azimuth to 0°
	12:34:56	754.93	881	Detector bias heater off
	12:44:32	764.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
05/21/87	14:45:19			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
05/27/87	01:04:16	64.27	419	Address azimuth position A
	01:04:48	64.80	2xx	Data command, high byte
	01:05:52	65.87	1xx	Data command, low byte
End azimuth angle load commands ( $A = 63.68^\circ$ ).				
Begin preinternal calibration sequence.				
05/27/87	08:57:20	537.33	821	Elevate to internal source (stow)
	08:57:52	537.87	862	WFOV BB heater on at temp. 1
	08:58:24	538.40	872	MFOV BB heater on at temp. 1
	10:34:24	634.40	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
05/27/87	10:35:28	635.47	8A1	Begin internal calibration
	10:36:00	636.00	881	Detector bias heater off
	10:36:32	636.53	852	Solar port heaters off
	10:37:04	637.07	821	Elevate to internal source (stow)
	10:37:36	637.60	851	Solar port heaters on
	10:39:44	639.73	882	Detector bias heater on at level 1
	10:41:52	641.87	892	SWICS on at level 3
	10:45:04	645.07	881	Detector bias heater off
	10:48:48	648.80	862	WFOV BB heater on at temp. 1
	10:49:20	649.33	872	MFOV BB heater on at temp. 1
	10:50:24	650.40	891	SWICS off
	11:03:44	663.73	883	Detector bias heater on at level 2
	11:05:52	665.87	893	SWICS on at level 2
	11:09:04	669.07	881	Detector bias heater off
	11:12:48	672.80	863	WFOV BB heater on at temp. 2
	11:13:20	673.33	873	MFOV BB heater on at temp. 2
	11:14:24	674.40	891	SWICS off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/27/87	11:27:44	687.73	884	Detector bias heater on at level 3
	11:29:52	689.87	894	SWICS on at level 1
	11:32:00	692.00	881	Detector bias heater off
	11:34:40	694.67	852	Solar port heaters off
	11:35:44	695.73	861	WFOV BB heater off
	11:36:16	696.27	871	MFOV BB heater off
	11:36:48	696.80	851	Solar port heaters on
	11:37:20	697.33	891	SWICS off
End internal calibration sequence.				
05/27/87	11:44:16	704.27	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
05/27/87	11:51:12	711.20	822	Elevate to solar ports (Sun)
	11:51:44	711.73	814	Azimuth to position A
	11:52:16	712.27	883	Detector bias heater on at level 2
	12:02:24	722.40	831	SMA shutter cycle on
	12:43:28	763.47	832	SMA shutter cycle off
	12:44:32	764.53	811	Azimuth to 0°
	12:45:04	765.07	881	Detector bias heater off
	12:54:40	774.67	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/03/87	02:10:24	130.40	419	Address azimuth position A
	02:10:56	130.93	2xx	Data command, high byte
	02:15:12	135.20	1xx	Data command, low byte
End azimuth angle load commands ( $A = 32.93^\circ$ ).				
Begin azimuth angle load commands for solar calibration.				
06/03/87	08:39:12	519.20	821	Elevate to internal source (stow)
	08:39:44	519.73	862	WFOV BB heater on at temp. 1
	08:40:16	520.27	872	MFOV BB heater on at temp. 1
	10:16:16	616.27	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
06/03/87	10:16:48	616.80	8A1	Begin internal calibration
	10:17:20	617.33	881	Detector bias heater off
	10:17:52	617.87	852	Solar port heaters off
	10:18:24	618.40	821	Elevate to internal source (stow)
	10:18:56	618.93	851	Solar port heaters on
	10:21:04	621.07	882	Detector bias heater on at level 1
	10:23:12	623.20	892	SWICS on at level 3
	10:26:24	626.40	881	Detector bias heater off
	10:30:08	630.13	862	WFOV BB heater on at temp. 1
	10:30:40	630.67	872	MFOV BB heater on at temp. 1
	10:31:44	631.73	891	SWICS off
	10:45:04	645.07	883	Detector bias heater on at level 2
	10:47:12	647.20	893	SWICS on at level 2

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/03/87	10:50:24	650.40	881	Detector bias heater off
	10:54:08	654.13	863	WFOV BB heater on at temp. 2
	10:54:40	654.67	873	MFOV BB heater on at temp. 2
	10:55:44	655.73	891	SWICS off
	11:09:04	669.07	884	Detector bias heater on at level 3
	11:11:12	671.20	894	SWICS on at level 1
	11:13:20	673.33	881	Detector bias heater off
	11:16:00	676.00	852	Solar port heaters off
	11:17:04	677.07	861	WFOV BB heater off
	11:17:36	677.60	871	MFOV BB heater off
	11:18:08	678.13	851	Solar port heaters on
	11:18:40	678.67	891	SWICS off
End internal calibration sequence.				
06/03/87	11:26:08	686.13	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
06/03/87	11:33:04	693.07	822	Elevate to solar ports (Sun)
	11:33:36	693.60	814	Azimuth to position A
	11:34:08	694.13	883	Detector bias heater on at level 2
	11:44:16	704.27	831	SMA shutter cycle on
	12:25:20	745.33	832	SMA shutter cycle off
	12:26:24	746.40	811	Azimuth to 0°
	12:26:56	746.93	881	Detector bias heater off
	12:36:32	756.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/18/87	01:43:12	103.20	419	Address azimuth position A
	01:43:44	103.73	2xx	Data command, high byte
	01:44:48	104.80	1xx	Data command, low byte
End azimuth angle load commands (A = 32.03°).				
Begin preinternal calibration sequence.				
06/18/87	08:52:32	532.53	821	Elevate to internal source (stow)
	08:53:04	533.07	862	WFOV BB heater on at temp. 1
	08:53:36	533.60	872	MFOV BB heater on at temp. 1
	10:29:04	629.07	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
06/18/87	10:30:08	630.13	8A1	Begin internal calibration
	10:30:40	630.67	881	Detector bias heater off
	10:31:12	631.20	852	Solar port heaters off
	10:31:44	631.73	821	Elevate to internal source (stow)
	10:32:16	632.27	851	Solar port heaters on
	10:34:24	634.40	882	Detector bias heater on at level 1
	10:36:32	636.53	892	SWICS on at level 3
	10:39:44	639.73	881	Detector bias heater off
	10:43:28	643.47	862	WFOV BB heater on at temp. 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/18/87	10:44:00	644.00	872	MFOV BB heater on at temp. 1
	10:45:04	645.07	891	SWICS off
	10:58:24	658.40	883	Detector bias heater on at level 2
	11:00:32	660.53	893	SWICS on at level 2
	11:03:44	663.73	881	Detector bias heater off
	11:07:28	667.47	863	WFOV BB heater on at temp. 2
	11:08:00	668.00	873	MFOV BB heater on at temp. 2
	11:09:04	669.07	891	SWICS off
	11:22:24	682.40	884	Detector bias heater on at level 3
	11:24:32	684.53	894	SWICS on at level 1
	11:26:40	686.67	881	Detector bias heater off
	11:29:20	689.33	852	Solar port heaters off
	11:30:24	690.40	861	WFOV BB heater off
	11:30:56	690.93	871	MFOV BB heater off
	11:31:28	691.47	851	Solar port heaters on
	11:32:00	692.00	891	SWICS off
End internal calibration sequence.				
06/18/87	11:39:28	699.47	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
06/18/87	11:46:24	706.40	822	Elevate to solar ports (Sun)
	11:46:56	706.93	814	Azimuth to position A
	11:47:28	707.47	883	Detector bias heater on at level 2
	11:57:36	717.60	831	SMA shutter cycle on
	12:38:40	758.67	832	SMA shutter cycle off
	12:39:44	759.73	811	Azimuth to 0°
	12:40:16	760.27	881	Detector bias heater off
	12:49:52	769.87	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/24/87	04:47:44	287.73	419	Address azimuth position A
	04:48:16	288.27	2xx	Data command, high byte
	04:49:52	289.87	1xx	Data command, low byte
End azimuth angle load commands (A = 58.50°).				
Begin preinternal calibration sequence.				
06/24/87	10:04:00	604.00	821	Elevate to internal source (stow)
	10:04:32	604.53	862	WFOV BB heater on at temp. 1
	10:05:04	605.07	872	MFOV BB heater on at temp. 1
	11:40:32	700.53	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
06/24/87	11:41:36	701.60	8A1	Begin internal calibration
	11:42:08	702.13	881	Detector bias heater off
	11:42:40	702.67	852	Solar port heaters off
	11:43:12	703.20	821	Elevate to internal source (stow)
	11:43:44	703.73	851	Solar port heaters on

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/24/87	11:45:52	705.87	882	Detector bias heater on at level 1
	11:48:00	708.00	892	SWICS on at level 3
	11:51:12	711.20	881	Detector bias heater off
	11:54:56	714.93	862	WFOV BB heater on at temp. 1
	11:55:28	715.47	872	MFOV BB heater on at temp. 1
	11:56:32	716.53	891	SWICS off
	12:09:52	729.87	883	Detector bias heater on at level 2
	12:12:00	732.00	893	SWICS on at level 2
	12:15:12	735.20	881	Detector bias heater off
	12:18:56	738.93	863	WFOV BB heater on at temp. 2
	12:19:28	739.47	873	MFOV BB heater on at temp. 2
	12:20:32	740.53	891	SWICS off
	12:33:52	753.87	884	Detector bias heater on at level 3
	12:36:00	756.00	894	SWICS on at level 1
	12:38:08	758.13	881	Detector bias heater off
	12:40:48	760.80	852	Solar port heaters off
	12:41:52	761.87	861	WFOV BB heater off
	12:42:24	762.40	871	MFOV BB heater off
	12:42:56	762.93	851	Solar port heaters on
	12:43:28	763.47	891	SWICS off
End internal calibration sequence.				
06/24/87	12:50:56	770.93	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
06/24/87	12:57:52	777.87	822	Elevate to solar ports (Sun)
	12:58:24	778.40	814	Azimuth to position A
	12:58:56	778.93	883	Detector bias heater on at level 2
	13:09:04	789.07	831	SMA shutter cycle on
	13:50:08	830.13	832	SMA shutter cycle off
	13:51:12	831.20	811	Azimuth to 0°
	13:51:44	831.73	881	Detector bias heater off
	14:01:20	841.33	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
07/02/87	15:16:15			Yaw maneuver attempted; unsuccessful
	21:53:20	1313.33	821	Elevate to internal source (stow)
	21:54:39	1314.65		Instrument power off
07/03/87	08:10:00			Instrument power on <sup>a</sup>
	15:30:07			Yaw maneuver to X-axis positive
	17:19:12	1039.20	823	Elevate to nadir (Earth)
Begin BB set point temperature load commands (temp. 1 = 28°C; temp. 2 = 31.2°C).				
07/07/87	19:57:03	1197.05	461	Address MFOV BB temp. 1
	19:57:35	1197.58	2xx	Data command, high byte
	19:58:39	1198.65	1xx	Data command, low byte
	19:59:43	1199.72	463	Address MFOV BB temp. 2

<sup>a</sup>Approximate time of instrument power on according to GSFC documentation; no data were received until 12:09 UT on July 3, 1987.



Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/07/87	20:00:15	1200.25	2xx	Data command, high byte
	20:00:47	1200.78	1xx	Data command, low byte
	20:02:23	1202.38	465	Address WFOV BB temp. 1
	20:02:55	1202.92	2xx	Data command, high byte
	20:03:59	1203.98	1xx	Data command, low byte
	20:04:31	1204.52	467	Address WFOV BB temp. 2
	20:05:03	1205.05	2xx	Data command, high byte
	20:06:07	1206.12	1xx	Data command, low byte
End BB set point temperature load commands.				
Begin azimuth angle load commands for solar calibration.				
07/08/87	00:21:36	21.60	419	Address azimuth position A
	00:22:08	22.13	2xx	Data command, high byte
	00:23:12	23.20	1xx	Data command, low byte
End azimuth angle load commands ( $A = 68.48^\circ$ ).				
Begin internal calibration sequence.				
07/08/87	08:50:56	530.93	821	Elevate to internal source (stow)
	08:51:28	531.47	862	WFOV BB heater on at temp. 1
	08:52:00	532.00	872	MFOV BB heater on at temp. 1
	10:28:00	628.00	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
07/08/87	10:29:04	629.07	8A1	Begin internal calibration
	10:29:36	629.60	881	Detector bias heater off
	10:30:08	630.13	852	Solar port heaters off
	10:30:40	630.67	821	Elevate to internal source (stow)
	10:31:12	631.20	851	Solar port heaters on
	10:33:20	633.33	882	Detector bias heater on at level 1
	10:35:28	635.47	892	SWICS on at level 3
	10:38:40	638.67	881	Detector bias heater off
	10:42:24	642.40	862	WFOV BB heater on at temp. 1
	10:42:56	642.93	872	MFOV BB heater on at temp. 1
	10:44:00	644.00	891	SWICS off
	10:57:20	657.33	883	Detector bias heater on at level 2
	10:59:28	659.47	893	SWICS on at level 2
	11:02:40	662.67	881	Detector bias heater off
	11:06:24	666.40	863	WFOV BB heater on at temp. 2
	11:06:56	666.93	873	MFOV BB heater on at temp. 2
	11:08:00	668.00	891	SWICS off
	11:21:20	681.33	884	Detector bias heater on at level 3
	11:23:28	683.47	894	SWICS on at level 1
	11:25:36	685.60	881	Detector bias heater off
	11:28:16	688.27	852	Solar port heaters off
	11:29:20	689.33	861	WFOV BB heater off
	11:29:52	689.87	871	MFOV BB heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/08/87	11:30:24	690.40	851	Solar port heaters on
	11:30:56	690.93	891	SWICS off
End internal calibration sequence.				
07/08/87	11:37:52	697.87	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
07/08/87	11:45:20	705.33	822	Elevate to solar ports (Sun)
	11:45:52	705.87	814	Azimuth to position A
	11:46:24	706.40	883	Detector bias heater on at level 2
	11:56:32	716.53	831	SMA shutter cycle on
	12:37:36	757.60	832	SMA shutter cycle off
	12:38:40	758.67	811	Azimuth to 0°
	12:39:12	759.20	881	Detector bias heater off
	12:48:48	768.80	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
07/09/87	06:23:12	383.20	821	Elevate to internal source (stow)
	06:23:44	383.73	862	WFOV BB heater on at temp. 1
	06:24:16	384.27	872	MFOV BB heater on at temp. 1
	08:00:16	480.27	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
07/09/87	08:01:20	481.33	8A1	Begin internal calibration
	08:01:52	481.87	881	Detector bias heater off
	08:02:24	482.40	852	Solar port heaters off
	08:02:56	482.93	821	Elevate to internal source (stow)
	08:03:28	483.47	851	Solar port heaters on
	08:05:36	485.60	882	Detector bias heater on at level 1
	08:07:44	487.73	892	SWICS on at level 3
	08:10:56	490.93	881	Detector bias heater off
	08:14:40	494.67	862	WFOV BB heater on at temp. 1
	08:15:12	495.20	872	MFOV BB heater on at temp. 1
	08:16:16	496.27	891	SWICS off
	08:29:36	509.60	883	Detector bias heater on at level 2
	08:31:44	511.73	893	SWICS on at level 2
	08:34:56	514.93	881	Detector bias heater off
	08:38:40	518.67	863	WFOV BB heater on at temp. 2
	08:39:12	519.20	873	MFOV BB heater on at temp. 2
	08:40:16	520.27	891	SWICS off
	08:53:36	533.60	884	Detector bias heater on at level 3
	08:55:44	535.73	894	SWICS on at level 1
	08:57:52	537.87	881	Detector bias heater off
	09:00:32	540.53	852	Solar port heaters off
	09:01:36	541.60	861	WFOV BB heater off
	09:02:08	542.13	871	MFOV BB heater off
	09:02:40	542.67	851	Solar port heaters on

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/09/87	09:03:12	543.20	891	SWICS off
End internal calibration sequence.				
07/09/87	09:10:08	550.13	823	Elevate to nadir (Earth)
Begin preinternal calibration sequence.				
07/10/87	06:23:12	383.20	821	Elevate to internal source (stow)
	06:23:44	383.73	862	WFOV BB heater on at temp. 1
	06:24:16	384.27	872	MFOV BB heater on at temp. 1
	08:00:16	480.27	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
07/10/87	08:01:20	481.33	8A1	Begin internal calibration
	08:01:52	481.87	881	Detector bias heater off
	08:02:24	482.40	852	Solar port heaters off
	08:02:56	482.93	821	Elevate to internal source (stow)
	08:03:28	483.47	851	Solar port heaters on
	08:05:36	485.60	882	Detector bias heater on at level 1
	08:07:44	487.73	892	SWICS on at level 3
	08:10:56	490.93	881	Detector bias heater off
	08:14:40	494.67	862	WFOV BB heater on at temp. 1
	08:15:12	495.20	872	MFOV BB heater on at temp. 1
	08:16:16	496.27	891	SWICS off
	08:29:36	509.60	883	Detector bias heater on at level 2
	08:31:44	511.73	893	SWICS on at level 2
	08:34:56	514.93	881	Detector bias heater off
	08:38:40	518.67	863	WFOV BB heater on at temp. 2
	08:39:12	519.20	873	MFOV BB heater on at temp. 2
	08:40:16	520.27	891	SWICS off
	08:53:36	533.60	884	Detector bias heater on at level 3
	08:55:44	535.73	894	SWICS on at level 1
	08:57:52	537.87	881	Detector bias heater off
	09:00:32	540.53	852	Solar port heaters off
	09:01:36	541.60	861	WFOV BB heater off
	09:02:08	542.13	871	MFOV BB heater off
	09:02:40	542.67	851	Solar port heaters on
	09:03:12	543.20	891	SWICS off
End internal calibration sequence.				
07/10/87	09:10:08	550.13	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
07/22/87	04:12:32	252.53	419	Address azimuth position A
	04:13:04	253.07	2xx	Data command, high byte
	04:14:08	254.13	1xx	Data command, low byte
End azimuth angle load commands ( $A = 58.43^\circ$ ).				
Begin preinternal calibration sequence.				
07/22/87	10:08:48	608.80	821	Elevate to internal source (stow)
	10:09:20	609.33	862	WFOV B-B heater on at temp. 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/22/87	10:09:52	609.87	872	MFOV B-B heater on at temp. 1
	11:45:52	705.87	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
07/22/87	11:46:56	706.93	8A1	Begin internal calibration
	11:47:28	707.47	881	Detector bias heater off
	11:48:00	708.00	852	Solar port heaters off
	11:48:32	708.53	821	Elevate to internal source (stow)
	11:49:04	709.07	851	Solar port heaters on
	11:51:12	711.20	882	Detector bias heater on at level 1
	11:53:20	713.33	892	SWICS on at level 3
	11:56:32	716.53	881	Detector bias heater off
	12:00:16	720.27	862	WFOV BB heater on at temp. 1
	12:00:48	720.80	872	MFOV BB heater on at temp. 1
	12:01:52	721.87	891	SWICS off
	12:15:12	735.20	883	Detector bias heater on at level 2
	12:17:20	737.33	893	SWICS on at level 2
	12:20:32	740.53	881	Detector bias heater off
	12:24:16	744.27	863	WFOV BB heater on at temp. 2
	12:24:48	744.80	873	MFOV BB heater on at temp. 2
	12:25:52	745.87	891	SWICS off
	12:39:12	759.20	884	Detector bias heater on at level 3
	12:41:20	761.33	894	SWICS on at level 1
	12:43:28	763.47	881	Detector bias heater off
	12:46:08	766.13	852	Solar port heaters off
	12:47:12	767.20	861	WFOV BB heater off
	12:47:44	767.73	871	MFOV BB heater off
	12:48:16	768.27	851	Solar port heaters on
	12:48:48	768.80	891	SWICS off
End internal calibration sequence.				
07/22/87	12:55:44	775.73	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
07/22/87	13:02:40	782.67	822	Elevate to solar ports (Sun)
	13:03:12	783.20	814	Azimuth to position A
	13:03:44	783.73	883	Detector bias heater on at level 2
	13:13:52	793.87	831	SMA shutter cycle on
	13:54:56	834.93	832	SMA shutter cycle off
	13:56:00	836.00	811	Azimuth to 0°
	13:56:32	836.53	881	Detector bias heater off
	14:06:08	846.13	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
07/31/87	14:44:15			Yaw maneuver to X-axis negative
Begin azimuth angle load commands for solar calibration.				
08/05/87	00:22:40	22.67	419	Address azimuth position A
	00:23:44	23.73	2xx	Data command, high byte

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/05/87	00:24:48	24.80	1xx	Data command, low byte
End azimuth angle load commands ( $A = 75.98^\circ$ ). Begin preinternal calibration sequence.				
08/05/87	08:46:40	526.67	821	Elevate to internal source (stow)
	08:47:12	527.20	862	WFOV BB heater on at temp. 1
	08:47:44	527.73	872	MFOV BB heater on at temp. 1
	10:23:44	623.73	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
08/05/87	10:24:48	624.80	8A1	Begin internal calibration
	10:25:20	625.33	881	Detector bias heater off
	10:25:52	625.87	852	Solar port heaters off
	10:26:24	626.40	821	Elevate to internal source (stow)
	10:26:56	626.93	851	Solar port heaters on
	10:29:04	629.07	882	Detector bias heater on at level 1
	10:31:12	631.20	892	SWICS on at level 3
	10:34:24	634.40	881	Detector bias heater off
	10:38:08	638.13	862	WFOV BB heater on at temp. 1
	10:38:40	638.67	872	MFOV BB heater on at temp. 1
	10:39:44	639.73	891	SWICS off
	10:53:04	653.07	883	Detector bias heater on at level 2
	10:55:12	655.20	893	SWICS on at level 2
	10:58:24	658.40	881	Detector bias heater off
	11:02:08	662.13	863	WFOV BB heater on at temp. 2
	11:02:40	662.67	873	MFOV BB heater on at temp. 2
	11:03:44	663.73	891	SWICS off
	11:17:04	677.07	884	Detector bias heater on at level 3
	11:19:12	679.20	894	SWICS on at level 1
	11:21:20	681.33	881	Detector bias heater off
	11:24:00	684.00	852	Solar port heaters off
	11:25:04	685.07	861	WFOV BB heater off
	11:25:36	685.60	871	MFOV BB heater off
	11:26:08	686.13	851	Solar port heaters on
	11:26:40	686.67	891	SWICS off
End internal calibration sequence.				
08/05/87	11:33:36	693.60	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
08/05/87	11:41:04	701.07	822	Elevate to solar ports (Sun)
	11:41:36	701.60	814	Azimuth to position A
	11:42:08	702.13	883	Detector bias heater on at level 2
	11:52:16	712.27	831	SMA shutter cycle on
	12:33:20	753.33	832	SMA shutter cycle off
	12:34:24	754.40	811	Azimuth to $0^\circ$

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/05/87	12:34:56	754.93	881	Detector bias heater off
	12:44:32	764.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/12/87	00:04:32	4.53	419	Address azimuth position A
	00:05:04	5.07	2xx	Data command, high byte
	00:06:08	6.13	1xx	Data command, low byte
End azimuth angle load commands ( $A = 48.08^\circ$ ).				
Begin preinternal calibration sequence.				
08/12/87	05:17:36	317.60	821	Elevate to internal source (stow)
	05:18:40	318.67	862	WFOV BB heater on at temp. 1
	05:19:12	319.20	872	MFOV BB heater on at temp. 1
	06:54:40	414.67	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
08/12/87	06:55:44	415.73	8A1	Begin internal calibration
	06:56:16	416.27	881	Detector bias heater off
	06:56:48	416.80	852	Solar port heaters off
	06:57:20	417.33	821	Elevate to internal source (stow)
	06:57:52	417.87	851	Solar port heaters on
	07:00:00	420.00	882	Detector bias heater on at level 1
	07:02:08	422.13	892	SWICS on at level 3
	07:05:20	425.33	881	Detector bias heater off
	07:09:04	429.07	862	WFOV BB heater on at temp. 1
	07:09:36	429.60	872	MFOV BB heater on at temp. 1
	07:10:40	430.67	891	SWICS off
	07:24:00	444.00	883	Detector bias heater on at level 2
	07:26:08	446.13	893	SWICS on at level 2
	07:29:20	449.33	881	Detector bias heater off
	07:33:04	453.07	863	WFOV BB heater on at temp. 2
	07:33:36	453.60	873	MFOV BB heater on at temp. 2
	07:34:40	454.67	891	SWICS off
	07:48:00	468.00	884	Detector bias heater on at level 3
	07:50:08	470.13	894	SWICS on at level 1
	07:52:16	472.27	881	Detector bias heater off
	07:54:56	474.93	852	Solar port heaters off
	07:56:00	476.00	861	WFOV BB heater off
	07:56:32	476.53	871	MFOV BB heater off
	07:57:04	477.07	851	Solar port heaters on
	07:57:36	477.60	891	SWICS off
End internal calibration sequence.				
08/12/87	08:05:04	485.07	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
08/12/87	08:12:00	492.00	822	Elevate to solar ports (Sun)
	08:12:32	492.53	814	Azimuth to position A

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/12/87	08:13:04	493.07	883	Detector bias heater on at level 2
	08:23:12	503.20	831	SMA shutter cycle on
	09:04:16	544.27	832	SMA shutter cycle off
	09:05:20	545.33	811	Azimuth to 0°
	09:05:52	545.87	881	Detector bias heater off
	09:15:28	555.47	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/17/87	01:08:00	68.00	419	Address azimuth position A
	01:08:32	68.53	2xx	Data command, high byte
	01:09:36	69.60	1xx	Data command, low byte
End azimuth angle load commands (A = 48.08°).				
Begin preinternal calibration sequence.				
08/17/87	04:40:16	280.27	821	Elevate to internal source (stow)
	04:40:48	280.80	862	WFOV BB heater on at temp. 1
	04:41:20	281.33	872	MFOV BB heater on at temp. 1
	06:17:20	377.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
08/17/87	06:18:24	378.40	8A1	Begin internal calibration
	06:18:56	378.93	881	Detector bias heater off
	06:19:28	379.47	852	Solar port heaters off
	06:20:00	380.00	821	Elevate to internal source (stow)
	06:20:32	380.53	851	Solar port heaters on
	06:22:40	382.67	882	Detector bias heater on at level 1
	06:24:48	384.80	892	SWICS on at level 3
	06:28:00	388.00	881	Detector bias heater off
	06:31:44	391.73	862	WFOV BB heater on at temp. 1
	06:32:16	392.27	872	MFOV BB heater on at temp. 1
	06:33:20	393.33	891	SWICS off
	06:46:40	406.67	883	Detector bias heater on at level 2
	06:48:48	408.80	893	SWICS on at level 2
	06:52:00	412.00	881	Detector bias heater off
	06:55:44	415.73	863	WFOV BB heater on at temp. 2
	06:56:16	416.27	873	MFOV BB heater on at temp. 2
	06:57:20	417.33	891	SWICS off
	07:10:40	430.67	884	Detector bias heater on at level 3
	07:12:48	432.80	894	SWICS on at level 1
	07:14:56	434.93	881	Detector bias heater off
	07:17:36	437.60	852	Solar port heaters off
	07:18:40	438.67	861	WFOV BB heater off
	07:19:12	439.20	871	MFOV BB heater off
	07:19:44	439.73	851	Solar port heaters on
	07:20:16	440.27	891	SWICS off
End internal calibration sequence.				

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/17/87	07:27:12	447.20	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
08/17/87	07:34:40	454.67	822	Elevate to solar ports (Sun)
	07:35:12	455.20	814	Azimuth to position A
	07:35:44	455.73	883	Detector bias heater on at level 2
	07:45:52	465.87	831	SMA shutter cycle on
	08:26:56	506.93	832	SMA shutter cycle off
	08:28:00	508.00	811	Azimuth to 0°
	08:28:32	508.53	881	Detector bias heater off
	08:38:08	518.13	823	Elevate to nadir (Earth)
Unsuccessful solar calibration; incorrect azimuth angle (should have been 28.80°).				
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/28/87	02:08:16	128.27	419	Address azimuth position A
	02:10:56	130.93	2xx	Data command, high byte
	02:12:00	132.00	1xx	Data command, low byte
End azimuth angle load commands (A = 33.00°).				
Begin preinternal calibration sequence.				
08/28/87	10:25:20	625.33	821	Elevate to internal source (stow)
	10:25:52	625.87	862	WFOV BB heater on at temp. 1
	10:26:24	626.40	872	MFOV BB heater on at temp. 1
	12:02:24	722.40	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
08/28/87	12:03:28	723.47	8A1	Begin internal calibration
	12:04:00	724.00	881	Detector bias heater off
	12:04:32	724.53	852	Solar port heaters off
	12:05:04	725.07	821	Elevate to internal source (stow)
	12:05:36	725.60	851	Solar port heaters on
	12:07:44	727.73	882	Detector bias heater on at level 1
	12:09:52	729.87	892	SWICS on at level 3
	12:13:04	733.07	881	Detector bias heater off
	12:16:48	736.80	862	WFOV BB heater on at temp. 1
	12:17:20	737.33	872	MFOV BB heater on at temp. 1
	12:18:24	738.40	891	SWICS off
	12:31:44	751.73	883	Detector bias heater on at level 2
	12:33:52	753.87	893	SWICS on at level 2
	12:37:04	757.07	881	Detector bias heater off
	12:40:48	760.80	863	WFOV BB heater on at temp. 2
	12:41:20	761.33	873	MFOV BB heater on at temp. 2
	12:42:24	762.40	891	SWICS off
	12:55:44	775.73	884	Detector bias heater on at level 3
	12:57:52	777.87	894	SWICS on at level 1
	13:00:00	780.00	881	Detector bias heater off



Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/28/87	13:02:40	782.67	852	Solar port heaters off
	13:03:44	783.73	861	WFOV BB heater off
	13:04:16	784.27	871	MFOV BB heater off
	13:04:48	784.80	851	Solar port heaters on
	13:05:20	785.33	891	SWICS off
End internal calibration sequence.				
08/28/87	13:12:16	792.27	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
08/28/87	13:19:44	799.73	822	Elevate to solar ports (Sun)
	13:20:16	800.27	814	Azimuth to position A
	13:20:48	800.80	883	Detector bias heater on at level 2
	13:30:56	810.93	831	SMA shutter cycle on
	14:12:00	852.00	832	SMA shutter cycle off
	14:13:04	853.07	811	Azimuth to 0°
	14:13:36	853.60	881	Detector bias heater off
	14:23:12	863.20	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
09/01/87	18:15:12	1095.20	419	Address azimuth position A
	18:15:44	1095.73	2xx	Data command, high byte
	18:17:52	1097.87	1xx	Data command, low byte
End azimuth angle load commands ( $A = 53.63^\circ$ ).				
Begin preinternal calibration sequence.				
09/02/87	09:50:40	590.67	821	Elevate to internal source (stow)
	09:51:12	591.20	862	WFOV BB heater on at temp. 1
	09:51:44	591.73	872	MFOV BB heater on at temp. 1
	11:27:44	687.73	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/02/87	11:28:48	688.80	8A1	Begin internal calibration
	11:29:20	689.33	881	Detector bias heater off
	11:29:52	689.87	852	Solar port heaters off
	11:30:24	690.40	821	Elevate to internal source (stow)
	11:30:56	690.93	851	Solar port heaters on
	11:33:04	693.07	882	Detector bias heater on at level 1
	11:35:12	695.20	892	SWICS on at level 3
	11:38:24	698.40	881	Detector bias heater off
	11:42:08	702.13	862	WFOV BB heater on at temp. 1
	11:42:40	702.67	872	MFOV BB heater on at temp. 1
	11:43:44	703.73	891	SWICS off
	11:57:04	717.07	883	Detector bias heater on at level 2
	11:59:12	719.20	893	SWICS on at level 2
	12:02:24	722.40	881	Detector bias heater off
	12:06:08	726.13	863	WFOV BB heater on at temp. 2
	12:06:40	726.67	873	MFOV BB heater on at temp. 2

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/02/87	12:07:44	727.73	891	SWICS off
	12:21:04	741.07	884	Detector bias heater on at level 3
	12:23:12	743.20	894	SWICS on at level 1
	12:25:20	745.33	881	Detector bias heater off
	12:28:00	748.00	852	Solar port heaters off
	12:29:04	749.07	861	WFOV BB heater off
	12:29:36	749.60	871	MFOV BB heater off
	12:30:08	750.13	851	Solar port heaters on
	12:30:40	750.67	891	SWICS off
End internal calibration sequence.				
09/02/87	12:37:36	757.60	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
09/02/87	12:45:04	765.07	822	Elevate to solar ports (Sun)
	12:45:36	765.60	814	Azimuth to position A
	12:46:08	766.13	883	Detector bias heater on at level 2
	12:56:16	776.27	831	SMA shutter cycle on
	13:37:20	817.33	832	SMA shutter cycle off
	13:38:24	818.40	811	Azimuth to 0°
	13:38:56	818.93	881	Detector bias heater off
	13:48:32	828.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
09/08/87	19:57:36	1197.60	419	Address azimuth position A
	19:58:08	1198.13	2xx	Data command, high byte
	19:59:12	1199.20	1xx	Data command, low byte
End azimuth angle load commands ( $A = 84.00^\circ$ ).				
Begin preinternal calibration sequence.				
09/09/87	09:36:16	576.27	821	Elevate to internal source (stow)
	09:36:48	576.80	862	WFOV BB heater on at temp. 1
	09:37:20	577.33	872	MFOV BB heater on at temp. 1
	11:13:20	673.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/09/87	11:14:24	674.40	8A1	Begin internal calibration
	11:14:56	674.93	881	Detector bias heater off
	11:15:28	675.47	852	Solar port heaters off
	11:16:00	676.00	821	Elevate to internal source (stow)
	11:16:32	676.53	851	Solar port heaters on
	11:18:40	678.67	882	Detector bias heater on at level 1
	11:20:48	680.80	892	SWICS on at level 3
	11:24:00	684.00	881	Detector bias heater off
	11:27:44	687.73	862	WFOV BB heater on at temp. 1
	11:28:16	688.27	872	MFOV BB heater on at temp. 1
	11:29:20	689.33	891	SWICS off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/09/87	11:42:40	702.67	883	Detector bias heater on at level 2
	11:44:48	704.80	893	SWICS on at level 2
	11:48:00	708.00	881	Detector bias heater off
	11:51:44	711.73	863	WFOV BB heater on at temp. 2
	11:52:16	712.27	873	MFOV BB heater on at temp. 2
	11:53:20	713.33	891	SWICS off
	12:06:40	726.67	884	Detector bias heater on at level 3
	12:08:48	728.80	894	SWICS on at level 1
	12:10:56	730.93	881	Detector bias heater off
	12:13:36	733.60	852	Solar port heaters off
	12:14:40	734.67	861	WFOV BB heater off
	12:15:12	735.20	871	MFOV BB heater off
	12:15:44	735.73	851	Solar port heaters on
	12:16:16	736.27	891	SWICS off
End internal calibration sequence.				
09/09/87	12:23:12	743.20	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
09/09/87	12:30:40	750.67	822	Elevate to solar ports (Sun)
	12:31:12	751.20	814	Azimuth to position A
	12:31:44	751.73	883	Detector bias heater on at level 2
	12:41:52	761.87	831	SMA shutter cycle on
	13:22:24	802.40	832	SMA shutter cycle off
	13:23:28	803.47	811	Azimuth to 0°
	13:24:00	804.00	881	Detector bias heater off
	13:33:36	813.60	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
09/10/87	13:20:15			Yaw maneuver to X-axis positive
Begin azimuth angle load commands for solar calibration.				
09/15/87	14:31:12	871.20	419	Address azimuth position A
	14:31:44	871.73	2xx	Data command, high byte
	14:32:48	872.80	1xx	Data command, low byte
End azimuth angle load commands (A = 65.78°).				
Begin preinternal calibration sequence.				
09/16/87	10:16:16	616.27	821	Elevate to internal source (stow)
	10:16:48	616.80	862	WFOV BB heater on at temp. 1
	10:17:20	617.33	872	MFOV BB heater on at temp. 1
	11:53:20	713.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/16/87	11:54:24	714.40	8A1	Begin internal calibration
	11:54:56	714.93	881	Detector bias heater off
	11:55:28	715.47	852	Solar port heaters off
	11:56:00	716.00	821	Elevate to internal source (stow)
	11:56:32	716.53	851	Solar port heaters on
	11:58:40	718.67	882	Detector bias heater on at level 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/16/87	12:00:48	720.80	892	SWICS on at level 3
	12:04:00	724.00	881	Detector bias heater off
	12:07:44	727.73	862	WFOV BB heater on at temp. 1
	12:08:16	728.27	872	MFOV BB heater on at temp. 1
	12:09:20	729.33	891	SWICS off
	12:22:40	742.67	883	Detector bias heater on at level 2
	12:24:48	744.80	893	SWICS on at level 2
	12:28:00	748.00	881	Detector bias heater off
	12:31:44	751.73	863	WFOV BB heater on at temp. 2
	12:32:16	752.27	873	MFOV BB heater on at temp. 2
	12:33:20	753.33	891	SWICS off
	12:46:40	766.67	884	Detector bias heater on at level 3
	12:48:48	768.80	894	SWICS on at level 1
	12:50:56	770.93	881	Detector bias heater off
	12:53:36	773.60	852	Solar port heaters off
	12:54:40	774.67	861	WFOV BB heater off
	12:55:12	775.20	871	MFOV BB heater off
	12:55:44	775.73	851	Solar port heaters on
	12:56:16	776.27	891	SWICS off
End internal calibration sequence.				
09/16/87	13:03:12	783.20	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
09/16/87	13:10:40	790.67	822	Elevate to solar ports (Sun)
	13:11:12	791.20	814	Azimuth to position A
	13:11:44	791.73	883	Detector bias heater on at level 2
	13:21:52	801.87	831	SMA shutter cycle on
	14:02:24	842.40	832	SMA shutter cycle off
	14:03:28	843.47	811	Azimuth to 0°
	14:04:00	844.00	881	Detector bias heater off
	14:13:36	853.60	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
09/29/87	15:42:08	942.13	419	Address azimuth position A
	15:42:40	942.67	2xx	Data command, high byte
	15:44:16	944.27	1xx	Data command, low byte
End azimuth angle load commands ( $A = 29.10^\circ$ ).				
Begin preinternal calibration sequence.				
09/30/87	08:25:20	505.33	821	Elevate to internal source (stow)
	08:25:52	505.87	862	WFOV BB heater on at temp. 1
	08:26:56	506.93	872	MFOV BB heater on at temp. 1
	10:02:24	602.40	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/30/87	10:03:28	603.47	8A1	Begin internal calibration
	10:04:00	604.00	881	Detector bias heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/30/87	10:04:32	604.53	852	Solar port heaters off
	10:05:04	605.07	821	Elevate to internal source (stow)
	10:05:36	605.60	851	Solar port heaters on
	10:07:44	607.73	882	Detector bias heater on at level 1
	10:09:52	609.87	892	SWICS on at level 3
	10:13:04	613.07	881	Detector bias heater off
	10:16:48	616.80	862	WFOV BB heater on at temp. 1
	10:17:20	617.33	872	MFOV BB heater on at temp. 1
	10:18:24	618.40	891	SWICS off
	10:31:44	631.73	883	Detector bias heater on at level 2
	10:33:52	633.87	893	SWICS on at level 2
	10:37:04	637.07	881	Detector bias heater off
	10:40:48	640.80	863	WFOV BB heater on at temp. 2
	10:41:20	641.33	873	MFOV BB heater on at temp. 2
	10:42:24	642.40	891	SWICS off
	10:55:44	655.73	884	Detector bias heater on at level 3
	10:57:52	657.87	894	SWICS on at level 1
	11:00:00	660.00	881	Detector bias heater off
	11:02:40	662.67	852	Solar port heaters off
	11:03:44	663.73	861	WFOV BB heater off
	11:04:16	664.27	871	MFOV BB heater off
	11:04:48	664.80	851	Solar port heaters on
	11:05:20	665.33	891	SWICS off
End internal calibration sequence.				
09/30/87	11:12:16	672.27	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
09/30/87	11:19:44	679.73	822	Elevate to solar ports (Sun)
	11:20:16	680.27	814	Azimuth to position A
	11:20:48	680.80	883	Detector bias heater on at level 2
	11:30:56	690.93	831	SMA shutter cycle on
	12:12:00	732.00	832	SMA shutter cycle off
	12:13:04	733.07	811	Azimuth to 0°
	12:13:36	733.60	881	Detector bias heater off
	12:23:12	743.20	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
10/13/87	17:04:48	1024.80	419	Address azimuth position A
	17:05:20	1025.33	2xx	Data command, high byte
	17:06:24	1026.40	1xx	Data command, low byte
End azimuth angle load commands (A = 74.03°).				
Begin preinternal calibration sequence.				
10/14/87	09:38:56	578.93	821	Elevate to internal source (stow)
	09:40:00	580.00	862	WFOV BB heater on at temp. 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/14/87	09:40:32	580.53	872	MFOV BB heater on at temp. 1
	11:16:00	676.00	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence				
10/14/87	11:17:04	677.07	8A1	Begin internal calibration
	11:17:36	677.60	881	Detector bias heater off
	11:18:08	678.13	852	Solar port heaters off
	11:18:40	678.67	821	Elevate to internal source (stow)
	11:19:12	679.20	851	Solar port heaters on
	11:21:20	681.33	882	Detector bias heater on at level 1
	11:23:28	683.47	892	SWICS on at level 3
	11:26:40	686.67	881	Detector bias heater off
	11:30:24	690.40	862	WFOV BB heater on at temp. 1
	11:30:56	690.93	872	MFOV BB heater on at temp. 1
	11:32:00	692.00	891	SWICS off
	11:45:20	705.33	883	Detector bias heater on at level 2
	11:47:28	707.47	893	SWICS on at level 2
	11:50:40	710.67	881	Detector bias heater off
	11:54:24	714.40	863	WFOV BB heater on at temp. 2
	11:54:56	714.93	873	MFOV BB heater on at temp. 2
	11:56:00	716.00	891	SWICS off
	12:09:20	729.33	884	Detector bias heater on at level 3
	12:11:28	731.47	894	SWICS on at level 1
	12:13:36	733.60	881	Detector bias heater off
	12:16:16	736.27	852	Solar port heaters off
	12:17:20	737.33	861	WFOV BB heater off
	12:17:52	737.87	871	MFOV BB heater off
	12:18:24	738.40	851	Solar port heaters on
	12:18:56	738.93	891	SWICS off
End internal calibration sequence.				
10/14/87	12:26:24	746.40	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
10/14/87	12:33:20	753.33	822	Elevate to solar ports (Sun)
	12:33:52	753.87	814	Azimuth to position A
	12:34:24	754.40	883	Detector bias heater on at level 2
	12:44:32	764.53	831	SMA shutter cycle on
	13:25:36	805.60	832	SMA shutter cycle off
	13:26:40	806.67	811	Azimuth to 0°
	13:27:12	807.20	881	Detector bias heater off
	13:36:48	816.80	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
10/16/87	14:25:19			Yaw maneuver to X-axis negative
Begin azimuth angle load commands for solar calibration.				
10/27/87	15:03:12	903.20	419	Address azimuth position A
	15:03:44	903.73	2xx	Data command, high byte

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/27/87	15:04:48	904.80	1xx	Data command, low byte
End azimuth angle load commands ( $A = 56.10^\circ$ ). Begin preinternal calibration sequence.				
10/28/87	08:16:48	496.80	821	Elevate to internal source (stow)
	08:17:20	497.33	862	WFOV BB heater on at temp. 1
	08:17:52	497.87	872	MFOV BB heater on at temp. 1
	09:53:52	593.87	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
10/28/87	09:54:24	594.40	8A1	Begin internal calibration
	09:54:56	594.93	881	Detector bias heater off
	09:55:28	595.47	852	Solar port heaters off
	09:56:00	596.00	821	Elevate to internal source (stow)
	09:56:32	596.53	851	Solar port heaters on
	09:58:40	598.67	882	Detector bias heater on at level 1
	10:00:48	600.80	892	SWICS on at level 3
	10:04:00	604.00	881	Detector bias heater off
	10:07:44	607.73	862	WFOV BB heater on at temp. 1
	10:08:16	608.27	872	MFOV BB heater on at temp. 1
	10:09:20	609.33	891	SWICS off
	10:22:40	622.67	883	Detector bias heater on at level 2
	10:24:48	624.80	893	SWICS on at level 2
	10:28:00	628.00	881	Detector bias heater off
	10:31:44	631.73	863	WFOV BB heater on at temp. 2
	10:32:16	632.27	873	MFOV BB heater on at temp. 2
	10:33:20	633.33	891	SWICS off
	10:46:40	646.67	884	Detector bias heater on at level 3
	10:48:48	648.80	894	SWICS on at level 1
	10:50:56	650.93	881	Detector bias heater off
	10:53:36	653.60	852	Solar port heaters off
	10:54:40	654.67	861	WFOV BB heater off
	10:55:12	655.20	871	MFOV BB heater off
	10:55:44	655.73	851	Solar port heaters on
	10:56:16	656.27	891	SWICS off
End internal calibration sequence.				
10/28/87	11:03:44	663.73	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
10/28/87	11:10:40	670.67	822	Elevate to solar ports (Sun)
	11:11:12	671.20	814	Azimuth to position A
	11:11:44	671.73	883	Detector bias heater on at level 2
	11:21:52	681.87	831	SMA shutter cycle on
	12:02:56	722.93	832	SMA shutter cycle off
	12:04:00	724.00	811	Azimuth to $0^\circ$

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/28/87	12:04:32	724.53	881	Detector bias heater off
	12:14:08	734.13	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
11/10/87	19:21:52	1161.87	419	Address azimuth position A
	19:22:24	1162.40	2xx	Data command, high byte
	19:24:00	1164.00	1xx	Data command, low byte
End azimuth angle load commands ( $A = 59.33^\circ$ ).				
Begin preinternal calibration sequence.				
11/11/87	09:35:12	575.20	821	Elevate to internal source (stow)
	09:35:44	575.73	862	WFOV BB heater on at temp. 1
	09:36:16	576.27	872	MFOV BB heater on at temp. 1
	11:11:44	671.73	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
11/11/87	11:12:48	672.80	8A1	Begin internal calibration
	11:13:20	673.33	881	Detector bias heater off
	11:13:52	673.87	852	Solar port heaters off
	11:14:24	674.40	821	Elevate to internal source (stow)
	11:14:56	674.93	851	Solar port heaters on
	11:17:04	677.07	882	Detector bias heater on at level 1
	11:19:12	679.20	892	SWICS on at level 3
	11:22:24	682.40	881	Detector bias heater off
	11:26:08	686.13	862	WFOV BB heater on at temp. 1
	11:26:40	686.67	872	MFOV BB heater on at temp. 1
	11:27:44	687.73	891	SWICS off
	11:41:04	701.07	883	Detector bias heater on at level 2
	11:43:12	703.20	893	SWICS on at level 2
	11:46:24	706.40	881	Detector bias heater off
	11:50:08	710.13	863	WFOV BB heater on at temp. 2
	11:50:40	710.67	873	MFOV BB heater on at temp. 2
	11:51:44	711.73	891	SWICS off
	12:05:04	725.07	884	Detector bias heater on at level 3
	12:07:12	727.20	894	SWICS on at level 1
	12:09:20	729.33	881	Detector bias heater off
	12:12:00	732.00	852	Solar port heaters off
	12:13:04	733.07	861	WFOV BB heater off
	12:13:36	733.60	871	MFOV BB heater off
	12:14:08	734.13	851	Solar port heaters on
	12:14:40	734.67	891	SWICS off
End internal calibration sequence.				
11/11/87	12:22:08	742.13	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
11/11/87	12:29:04	749.07	822	Elevate to solar ports (Sun)
	12:29:36	749.60	814	Azimuth to position A



Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/11/87	12:30:08	750.13	883	Detector bias heater on at level 2
	12:40:16	760.27	831	SMA shutter cycle on
	13:21:20	801.33	832	SMA shutter cycle off
	13:22:24	802.40	811	Azimuth to 0°
	13:22:56	802.93	881	Detector bias heater off
	13:32:32	812.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
11/19/87	13:15:11			Yaw maneuver to $X$ -axis positive
Begin azimuth angle load commands for solar calibration.				
11/24/87	14:14:40	854.67	419	Address azimuth position A
	14:15:12	855.20	2xx	Data command, high byte
	14:16:16	856.27	1xx	Data command, low byte
End azimuth angle load commands ( $A = 66.98^\circ$ ).				
Begin preinternal calibration sequence.				
11/25/87	08:24:48	504.80	821	Elevate to internal source (stow)
	08:25:20	505.33	862	WFOV BB heater on at temp. 1
	08:25:52	505.87	872	MFOV BB heater on at temp. 1
	10:01:52	601.87	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
11/25/87	10:02:56	602.93	8A1	Begin internal calibration
	10:03:28	603.47	881	Detector bias heater off
	10:04:00	604.00	852	Solar port heaters off
	10:04:32	604.53	821	Elevate to internal source (stow)
	10:05:04	605.07	851	Solar port heaters on
	10:07:12	607.20	882	Detector bias heater on at level 1
	10:09:20	609.33	892	SWICS on at level 3
	10:12:32	612.53	881	Detector bias heater off
	10:16:16	616.27	862	WFOV BB heater on at temp. 1
	10:16:48	616.80	872	MFOV BB heater on at temp. 1
	10:17:52	617.87	891	SWICS off
	10:31:12	631.20	883	Detector bias heater on at level 2
	10:33:20	633.33	893	SWICS on at level 2
	10:36:32	636.53	881	Detector bias heater off
	10:40:16	640.27	863	WFOV BB heater on at temp. 2
	10:40:48	640.80	873	MFOV BB heater on at temp. 2
	10:41:52	641.87	891	SWICS off
	10:55:12	655.20	884	Detector bias heater on at level 3
	10:57:20	657.33	894	SWICS on at level 1
	10:59:28	659.47	881	Detector bias heater off
	11:02:08	662.13	852	Solar port heaters off
	11:03:12	663.20	861	WFOV BB heater off
	11:03:44	663.73	871	MFOV BB heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/25/87	11:04:16	664.27	851	Solar port heaters on
	11:04:48	664.80	891	SWICS off
End internal calibration sequence.				
11/25/87	11:11:44	671.73	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
11/25/87	11:18:40	678.67	822	Elevate to solar ports (Sun)
	11:19:12	679.20	814	Azimuth to position A
	11:19:44	679.73	883	Detector bias heater on at level 2
	11:29:52	689.87	831	SMA shutter cycle on
	12:10:56	730.93	832	SMA shutter cycle off
	12:12:00	732.00	811	Azimuth to 0°
	12:12:32	732.53	881	Detector bias heater off
	12:22:08	742.13	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/02/87	14:23:44	863.73	419	Address azimuth position A
	14:24:16	864.27	2xx	Data command, high byte
	14:25:20	865.33	1xx	Data command, low byte
End azimuth angle load commands (A = 33.00°).				
Begin preinternal calibration sequence.				
12/03/87	00:19:28	19.47	821	Elevate to internal source (stow)
	00:20:00	20.00	862	WFOV BB heater on at temp. 1
	00:20:32	20.53	872	MFOV BB heater on at temp. 1
	01:56:32	116.53	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
12/03/87	01:57:36	117.60	8A1	Begin internal calibration
	01:58:08	118.13	881	Detector bias heater off
	01:58:40	118.67	852	Solar port heaters off
	01:59:12	119.20	821	Elevate to internal source (stow)
	01:59:44	119.73	851	Solar port heaters on
	02:01:52	121.87	882	Detector bias heater on at level 1
	02:04:00	124.00	892	SWICS on at level 3
	02:07:12	127.20	881	Detector bias heater off
	02:10:56	130.93	862	WFOV BB heater on at temp. 1
	02:11:28	131.47	872	MFOV BB heater on at temp. 1
	02:12:32	132.53	891	SWICS off
	02:25:52	145.87	883	Detector bias heater on at level 2
	02:28:00	148.00	893	SWICS on at level 2
	02:31:12	151.20	881	Detector bias heater off
	02:34:56	154.93	863	WFOV BB heater on at temp. 2
	02:35:28	155.47	873	MFOV BB heater on at temp. 2
	02:36:32	156.53	891	SWICS off
	02:49:52	169.87	884	Detector bias heater on at level 3
	02:52:00	172.00	894	SWICS on at level 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/03/87	02:54:08	174.13	881	Detector bias heater off
	02:56:48	176.80	852	Solar port heaters off
	02:57:52	177.87	861	WFOV BB heater off
	02:58:24	178.40	871	MFOV BB heater off
	02:58:56	178.93	851	Solar port heaters on
	02:59:28	179.47	891	SWICS off
End internal calibration sequence.				
12/03/87	03:06:24	186.40	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
12/03/87	03:13:52	193.87	822	Elevate to solar ports (Sun)
	03:14:24	194.40	814	Azimuth to position A
	03:14:56	194.93	883	Detector bias heater on at level 2
	03:25:04	205.07	831	SMA shutter cycle on
	04:05:36	245.60	832	SMA shutter cycle off
	04:06:40	246.67	811	Azimuth to 0°
	04:07:12	247.20	881	Detector bias heater off
	04:16:48	256.80	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/17/87	14:04:00	844.00	419	Address azimuth position A
	14:04:32	844.53	2xx	Data command, high byte
	14:05:36	845.60	1xx	Data command, low byte
End azimuth angle load commands ( $A = 34.50^\circ$ ).				
Begin preinternal calibration sequence.				
12/18/87	08:38:08	518.13	821	Elevate to internal source (stow)
	08:38:40	518.67	862	WFOV BB heater on at temp. 1
	08:39:44	519.73	872	MFOV BB heater on at temp. 1
	10:15:12	615.20	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
12/18/87	10:16:16	616.27	8A1	Begin internal calibration
	10:16:48	616.80	881	Detector bias heater off
	10:17:20	617.33	852	Solar port heaters off
	10:17:52	617.87	821	Elevate to internal source (stow)
	10:18:24	618.40	851	Solar port heaters on
	10:20:32	620.53	882	Detector bias heater on at level 1
	10:22:40	622.67	892	SWICS on at level 3
	10:25:52	625.87	881	Detector bias heater off
	10:29:36	629.60	862	WFOV BB heater on at temp. 1
	10:30:08	630.13	872	MFOV BB heater on at temp. 1
	10:31:12	631.20	891	SWICS off
	10:44:32	644.53	883	Detector bias heater on at level 2
	10:46:40	646.67	893	SWICS on at level 2
	10:49:52	649.87	881	Detector bias heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/18/87	10:53:36	653.60	863	WFOV BB heater on at temp. 2
	10:54:08	654.13	873	MFOV BB heater on at temp. 2
	10:55:12	655.20	891	SWICS off
	11:08:32	668.53	884	Detector bias heater on at level 3
	11:10:40	670.67	894	SWICS on at level 1
	11:12:48	672.80	881	Detector bias heater off
	11:15:28	675.47	852	Solar port heaters off
	11:16:32	676.53	861	WFOV BB heater off
	11:17:04	677.07	871	MFOV BB heater off
	11:17:36	677.60	851	Solar port heaters on
	11:18:08	678.13	891	SWICS off
End internal calibration sequence.				
12/18/87	11:25:04	685.07	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
12/18/87	11:32:32	692.53	822	Elevate to solar ports (Sun)
	11:33:04	693.07	814	Azimuth to position A
	11:33:36	693.60	883	Detector bias heater on at level 2
	11:43:44	703.73	831	SMA shutter cycle on
	12:24:48	744.80	832	SMA shutter cycle off
	12:25:52	745.87	811	Azimuth to 0°
	12:26:24	746.40	881	Detector bias heater off
	12:36:00	756.00	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/22/87	17:03:12	1023.20	419	Address azimuth position A
	17:03:44	1023.73	2xx	Data command, high byte
	17:04:48	1024.80	1xx	Data command, low byte
End azimuth angle load commands ( $A = 56.78^\circ$ ).				
Begin preinternal calibration sequence.				
12/23/87	09:34:40	574.67	821	Elevate to internal source (stow)
	09:35:44	575.73	862	WFOV BB heater on at temp. 1
	09:36:16	576.27	872	MFOV BB heater on at temp. 1
	11:11:44	671.73	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
12/23/87	11:12:48	672.80	8A1	Begin internal calibration
	11:13:20	673.33	881	Detector bias heater off
	11:13:52	673.87	852	Solar port heaters off
	11:14:24	674.40	821	Elevate to internal source (stow)
	11:14:56	674.93	851	Solar port heaters on
	11:17:04	677.07	882	Detector bias heater on at level 1
	11:19:12	679.20	892	SWICS on at level 3
	11:22:24	682.40	881	Detector bias heater off
	11:26:08	686.13	862	WFOV BB heater on at temp. 1
	11:26:40	686.67	872	MFOV BB heater on at temp. 1

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/23/87	11:27:44	687.73	891	SWICS off
	11:41:04	701.07	883	Detector bias heater on at level 2
	11:43:12	703.20	893	SWICS on at level 2
	11:46:24	706.40	881	Detector bias heater off
	11:50:08	710.13	863	WFOV BB heater on at temp. 2
	11:50:40	710.67	873	MFOV BB heater on at temp. 2
	11:51:44	711.73	891	SWICS off
	12:05:04	725.07	884	Detector bias heater on - level 3
	12:07:12	727.20	894	SWICS on at level 1
	12:09:20	729.33	881	Detector bias heater off
	12:12:00	732.00	852	Solar port heaters off
	12:13:04	733.07	861	WFOV BB heater off
	12:13:36	733.60	871	MFOV BB heater off
	12:14:08	734.13	851	Solar port heaters on
	12:14:40	734.67	891	SWICS off
End internal calibration sequence.				
12/23/87	12:22:08	742.13	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
12/23/87	12:29:04	749.07	822	Elevate to solar ports (sun)
	12:29:36	749.60	814	Azimuth to position A
	12:30:08	750.13	883	Detector bias heater on at level 2
	12:40:16	760.27	831	SMA shutter cycle on
	13:21:20	801.33	832	SMA shutter cycle off
	13:22:24	802.40	811	Azimuth to 0°
	13:22:56	802.93	881	Detector bias heater off
	13:32:32	812.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
12/30/87	15:18:07			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
01/05/88	21:52:47	1312.78	419	Address azimuth position A
	21:53:19	1313.32	2xx	Data command, high byte
	21:54:23	1314.38	1xx	Data command, low byte
End azimuth angle load commands ( $A = 68.93^\circ$ ).				
Begin preinternal calibration sequence.				
01/06/88	09:45:51	585.85	821	Elevate to internal source (stow)
	09:46:23	586.38	862	WFOV BB heater on at temp. 1
	09:46:55	586.92	872	MFOV BB heater on at temp. 1
	11:22:55	682.92	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
01/06/88	11:23:59	683.98	8A1	Begin internal calibration
	11:24:31	684.52	881	Detector bias heater off
	11:25:03	685.05	852	Solar port heaters off
	11:25:35	685.58	821	Elevate to internal source (stow)
	11:26:07	686.12	851	Solar port heaters on

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/06/88	11:28:15	688.25	882	Detector bias heater on at level 1
	11:30:23	690.38	892	SWICS on at level 3
	11:33:35	693.58	881	Detector bias heater off
	11:37:19	697.32	862	WFOV BB heater on at temp. 1
	11:37:51	697.85	872	MFOV BB heater on at temp. 1
	11:38:55	698.92	891	SWICS off
	11:52:15	712.25	883	Detector bias heater on at level 2
	11:54:23	714.38	893	SWICS on at level 2
	11:57:35	717.58	881	Detector bias heater off
	12:01:19	721.32	863	WFOV BB heater on at temp. 2
	12:01:51	721.85	873	MFOV BB heater on at temp. 2
	12:02:55	722.92	891	SWICS off
	12:16:15	736.25	884	Detector bias heater on at level 3
	12:18:23	738.38	894	SWICS on at level 1
	12:20:31	740.52	881	Detector bias heater off
	12:23:11	743.18	852	Solar port heaters off
	12:24:15	744.25	861	WFOV BB heater off
	12:24:47	744.78	871	MFOV BB heater off
	12:25:19	745.32	851	Solar port heaters on
	12:25:51	745.85	891	SWICS off
End internal calibration sequence.				
01/06/88	12:32:47	752.78	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
01/06/88	12:40:15	760.25	822	Elevate to solar ports (Sun)
	12:40:47	760.78	814	Azimuth to position A
	12:41:19	761.32	883	Detector bias heater on at level 2
	12:51:27	771.45	831	SMA shutter cycle on
	13:32:31	812.52	832	SMA shutter cycle off
	13:33:35	813.58	811	Azimuth to 0°
	13:34:07	814.12	881	Detector bias heater off
	13:43:43	823.72	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
01/19/88	18:02:23	1082.38	419	Address azimuth position A
	18:02:55	1082.92	2xx	Data command, high byte
	18:03:59	1083.98	1xx	Data command, low byte
End azimuth angle load commands (A = 58.28°).				
Begin preinternal calibration sequence.				
01/20/88	09:24:31	564.52	821	Elevate to internal source (stow)
	09:25:03	565.05	862	WFOV BB heater on at temp. 1

Table 9. Continued

(a) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/20/88	09:26:07	566.12	872	MFOV BB heater on at temp. 1
	11:01:35	661.58	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
01/20/88	11:02:39	662.65	8A1	Begin internal calibration
	11:03:11	663.18	881	Detector bias heater off
	11:03:43	663.72	852	Solar port heaters off
	11:04:15	664.25	821	Elevate to internal source (stow)
	11:04:47	664.78	851	Solar port heaters on
	11:06:55	666.92	882	Detector bias heater on at level 1
	11:09:03	669.05	892	SWICS on at level 3
	11:12:15	672.25	881	Detector bias heater off
	11:15:59	675.98	862	WFOV BB heater on at temp. 1
	11:16:31	676.52	872	MFOV BB heater on at temp. 1
	11:17:35	677.58	891	SWICS off
	11:30:55	690.92	883	Detector bias heater on at level 2
	11:33:03	693.05	893	SWICS on at level 2
	11:36:15	696.25	881	Detector bias heater off
	11:39:59	699.98	863	WFOV BB heater on at temp. 2
	11:40:31	700.52	873	MFOV BB heater on at temp. 2
	11:41:35	701.58	891	SWICS off
	11:54:55	714.92	884	Detector bias heater on at level 3
	11:57:03	717.05	894	SWICS on at level 1
	11:59:11	719.18	881	Detector bias heater off
	12:01:51	721.85	852	Solar port heaters off
	12:02:55	722.92	861	WFOV BB heater off
	12:03:27	723.45	871	MFOV BB heater off
	12:03:59	723.98	851	Solar port heaters on
	12:04:31	724.52	891	SWICS off
End internal calibration sequence.				
01/20/88	12:11:27	731.45	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
01/20/88	12:18:55	738.92	822	Elevate to solar ports (Sun)
	12:19:27	739.45	814	Azimuth to position A
	12:19:59	739.98	883	Detector bias heater on at level 2
	12:30:07	750.12	831	SMA shutter cycle on
	13:11:11	791.18	832	SMA shutter cycle off
	13:12:15	792.25	811	Azimuth to 0°
	13:12:47	792.78	881	Detector bias heater off
	13:22:23	802.38	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
01/29/88	13:16:14			Yaw maneuver to X-axis positive

Table 9. Continued

(b) February 1988 through January 1989

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin azimuth angle load commands for solar calibration.				
02/02/88	14:09:19	849.32	419	Address azimuth position A
	14:09:51	849.85	2xx	Data command, high byte
	14:10:55	850.92	1xx	Data command, low byte
End azimuth angle load commands (A = 74.63°).				
Begin preinternal calibration sequence.				
02/03/88	13:06:55	786.92	821	Elevate to internal source (stow)
	13:07:27	787.45	862	WFOV BB heater on at temp. 1
	13:07:59	787.98	872	MFOV BB heater on at temp. 1
	14:43:27	883.45	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/03/88	14:44:31	884.52	8A1	Begin internal calibration
	14:45:03	885.05	881	Detector bias heater off
	14:45:35	885.58	852	Solar port heaters off
	14:46:07	886.12	821	Elevate to internal source (stow)
	14:46:39	886.65	851	Solar port heaters on
	14:48:47	888.78	882	Detector bias heater on at level 1
	14:50:55	890.92	892	SWICS on at level 3
	14:54:07	894.12	881	Detector bias heater off
	14:57:51	897.85	862	WFOV BB heater on at temp. 1
	14:58:23	898.38	872	MFOV BB heater on at temp. 1
	14:59:27	899.45	891	SWICS off
	15:12:47	912.78	883	Detector bias heater on at level 2
	15:14:55	914.92	893	SWICS on at level 2
	15:18:07	918.12	881	Detector bias heater off
	15:21:51	921.85	863	WFOV BB heater on at temp. 2
	15:22:23	922.38	873	MFOV BB heater on at temp. 2
	15:23:27	923.45	891	SWICS off
	15:36:47	936.78	884	Detector bias heater on at level 3
	15:38:55	938.92	894	SWICS on at level 1
	15:41:03	941.05	881	Detector bias heater off
	15:43:43	943.72	852	Solar port heaters off
	15:44:47	944.78	861	WFOV BB heater off
	15:45:19	945.32	871	MFOV BB heater off
	15:45:51	945.85	851	Solar port heaters on
	15:46:23	946.38	891	SWICS off
End internal calibration sequence.				
02/03/88	15:53:51	953.85	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
02/03/88	16:00:47	960.78	822	Elevate to solar ports (Sun)
	16:01:19	961.32	814	Azimuth to position A
	16:01:51	961.85	883	Detector bias heater on at level 2
	16:11:59	971.98	831	SMA shutter cycle on



Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/03/88	16:53:03	1013.05	832	SMA shutter cycle off
	16:54:07	1014.12	811	Azimuth to 0°
	16:54:39	1014.65	881	Detector bias heater off
	17:04:15	1024.25	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/13/88	13:06:23	786.38	419	Address azimuth position A
	13:06:55	786.92	2xx	Data command, high byte
	13:07:59	787.98	1xx	Data command, low byte
End azimuth angle load commands ( $A = 32.47^\circ$ ).				
Begin preinternal calibration sequence.				
02/13/88	23:12:15	1392.25	821	Elevate to internal source (stow)
	23:12:47	1392.78	862	WFOV BB heater on at temp. 1
	23:13:19	1393.32	872	MFOV BB heater on at temp. 1
02/14/88	00:49:19	49.32	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/14/88	00:50:23	50.38	8A1	Begin internal calibration
	00:50:55	50.92	881	Detector bias heater off
	00:51:27	51.45	852	Solar port heaters off
	00:51:59	51.98	821	Elevate to internal source (stow)
	00:52:31	52.52	851	Solar port heaters on
	00:54:39	54.65	882	Detector bias heater on at level 1
	00:56:47	56.78	892	SWICS on at level 3
	00:59:59	59.98	881	Detector bias heater off
	01:03:43	63.72	862	WFOV BB heater on at temp. 1
	01:04:15	64.25	872	MFOV BB heater on at temp. 1
	01:05:19	65.32	891	SWICS off
	01:18:39	78.65	883	Detector bias heater on at level 2
	01:20:47	80.78	893	SWICS on at level 2
	01:23:59	83.98	881	Detector bias heater off
	01:27:43	87.72	863	WFOV BB heater on at temp. 2
	01:28:15	88.25	873	MFOV BB heater on at temp. 2
	01:29:19	89.32	891	SWICS off
	01:42:39	102.65	884	Detector bias heater on at level 3
	01:44:47	104.78	894	SWICS on at level 1
	01:46:55	106.92	881	Detector bias heater off
	01:49:35	109.58	852	Solar port heaters off
	01:50:39	110.65	861	WFOV BB heater off
	01:51:11	111.18	871	MFOV BB heater off
	01:51:43	111.72	851	Solar port heaters on
	01:52:15	112.25	891	SWICS off
End internal calibration sequence.				
02/14/88	01:59:11	119.18	823	Elevate to nadir (Earth)

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin modified solar calibration sequence.				
02/14/88	02:06:39	126.65	822	Elevate to solar ports (Sun)
	02:07:11	127.18	814	Azimuth to position A
	02:07:43	127.72	883	Detector bias heater on at level 2
	02:17:51	137.85	831	SMA shutter cycle on
	02:58:23	178.38	832	SMA shutter cycle off
	02:59:27	179.45	811	Azimuth to 0°
	02:59:59	179.98	881	Detector bias heater off
	03:09:35	189.58	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/24/88	18:53:35	1133.58	419	Address azimuth position A
	18:54:07	1134.12	2xx	Data command, high byte
	18:55:11	1135.18	1xx	Data command, low byte
End azimuth angle load commands (A = 30.98°).				
Begin preinternal calibration sequence.				
02/25/88	08:09:19	489.32	821	Elevate to internal source (stow)
	08:10:23	490.38	862	WFOV BB heater on at temp 1
	08:10:55	490.92	872	MFOV BB heater on at temp 1
	09:46:23	586.38	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/25/88	09:47:27	587.45	8A1	Begin internal calibration
	09:47:59	587.98	881	Detector bias heater off
	09:48:31	588.52	852	Solar port heaters off
	09:49:03	589.05	821	Elevate to internal source (stow)
	09:49:35	589.58	851	Solar port heaters on
	09:51:43	591.72	882	Detector bias heater on at level 1
	09:53:51	593.85	892	SWICS on at level 3
	09:57:03	597.05	881	Detector bias heater off
	10:00:47	600.78	862	WFOV BB heater on at temp. 1
	10:01:19	601.32	872	MFOV BB heater on at temp. 1
	10:02:23	602.38	891	SWICS off
	10:15:43	615.72	883	Detector bias heater on at level 2
	10:17:51	617.85	893	SWICS on at level 2
	10:21:03	621.05	881	Detector bias heater off
	10:24:47	624.78	863	WFOV BB heater on at temp. 2
	10:25:19	625.32	873	MFOV BB heater on at temp. 2
	10:26:23	626.38	891	SWICS off
	10:39:43	639.72	884	Detector bias heater on at level 3
	10:41:51	641.85	894	SWICS on at level 1
	10:43:59	643.98	881	Detector bias heater off
	10:46:39	646.65	852	Solar port heaters off
	10:47:43	647.72	861	WFOV BB heater off
	10:48:15	648.25	871	MFOV BB heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/25/88	10:48:47	648.78	851	Solar port heaters on
	10:49:19	649.32	891	SWICS off
End internal calibration sequence.				
02/25/88	10:56:47	656.78	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
02/25/88	11:03:43	663.72	822	Elevate to solar ports (Sun)
	11:04:15	664.25	814	Azimuth to position A
	11:04:47	664.78	883	Detector bias heater on at level 2
	11:14:55	674.92	831	SMA shutter cycle on
	11:55:59	715.98	832	SMA shutter cycle off
	11:57:03	717.05	811	Azimuth to 0°
	11:57:35	717.58	881	Detector bias heater off
	12:07:11	727.18	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/01/88	13:35:43	815.72	419	Address azimuth position A
	13:36:15	816.25	2xx	Data command, high byte
	13:37:19	817.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 55.80^\circ$ ).				
Begin preinternal calibration sequence.				
03/02/88	09:19:43	559.72	821	Elevate to internal source (stow)
	09:20:15	560.25	862	WFOV BB heater on at temp. 1
	09:20:47	560.78	872	MFOV BB heater on at temp. 1
	10:56:47	656.78	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/02/88	10:57:51	657.85	8A1	Begin internal calibration
	10:58:23	658.38	881	Detector bias heater off
	10:58:55	658.92	852	Solar port heaters off
	10:59:27	659.45	821	Elevate to internal source (stow)
	10:59:59	659.98	851	Solar port heaters on
	11:02:07	662.12	882	Detector bias heater on at level 1
	11:04:15	664.25	892	SWICS on at level 3
	11:07:27	667.45	881	Detector bias heater off
	11:11:11	671.18	862	WFOV BB heater on at temp. 1
	11:11:43	671.72	872	MFOV BB heater on at temp. 1
	11:12:47	672.78	891	SWICS off
	11:26:07	686.12	883	Detector bias heater on at level 2
	11:28:15	688.25	893	SWICS on at level 2
	11:31:27	691.45	881	Detector bias heater off
	11:35:11	695.18	863	WFOV BB heater on at temp. 2
	11:35:43	695.72	873	MFOV BB heater on at temp. 2
	11:36:47	696.78	891	SWICS off
	11:50:07	710.12	884	Detector bias heater on at level 3
	11:52:15	712.25	894	SWICS on at level 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/02/88	11:54:23	714.38	881	Detector bias heater off
	11:57:03	717.05	852	Solar port heaters off
	11:58:07	718.12	861	WFOV BB heater off
	11:58:39	718.65	871	MFOV BB heater off
	11:59:11	719.18	851	Solar port heaters on
	11:59:43	719.72	891	SWICS off
End internal calibration sequence.				
03/02/88	12:06:39	726.65	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
03/02/88	12:14:07	734.12	822	Elevate to solar ports (Sun)
	12:14:39	734.65	814	Azimuth to position A
	12:15:11	735.18	883	Detector bias heater on at level 2
	12:25:19	745.32	831	SMA shutter cycle on
	13:06:23	786.38	832	SMA shutter cycle off
	13:07:27	787.45	811	Azimuth to 0°
	13:07:59	787.98	881	Detector bias heater off
	13:17:35	797.58	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
03/09/88	15:04:14			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
03/15/88	16:04:31	964.52	419	Address azimuth position A
	16:05:03	965.05	2xx	Data command, high byte
	16:06:07	966.12	1xx	Data command, low byte
End azimuth angle load commands ( $A = 63.53^\circ$ ).				
Begin preinternal calibration sequence.				
03/16/88	07:52:47	472.78	821	Elevate to internal source (stow)
	07:53:19	473.32	862	WFOV BB heater on at temp. 1
	07:53:51	473.85	872	MFOV BB heater on at temp. 1
	09:29:51	569.85	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/16/88	09:30:55	570.92	8A1	Begin internal calibration
	09:31:27	571.45	881	Detector bias heater off
	09:31:59	571.98	852	Solar port heaters off
	09:32:31	572.52	821	Elevate to internal source (stow)
	09:33:03	573.05	851	Solar port heaters on
	09:35:11	575.18	882	Detector bias heater on at level 1
	09:37:19	577.32	892	SWICS on at level 3
	09:40:31	580.52	881	Detector bias heater off
	09:44:15	584.25	862	WFOV BB heater on at temp. 1
	09:44:47	584.78	872	MFOV BB heater on at temp. 1
	09:45:51	585.85	891	SWICS off
	09:59:11	599.18	883	Detector bias heater on at level 2
	10:01:19	601.32	893	SWICS on at level 2
	10:04:31	604.52	881	Detector bias heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/16/88	10:08:15	608.25	863	WFOV BB heater on at temp. 2
	10:08:47	608.78	873	MFOV BB heater on at temp. 2
	10:09:51	609.85	891	SWICS off
	10:23:11	623.18	884	Detector bias heater on at level 3
	10:25:19	625.32	894	SWICS on at level 1
	10:27:27	627.45	881	Detector bias heater off
	10:30:07	630.12	852	Solar port heaters off
	10:31:11	631.18	861	WFOV BB heater off
	10:31:43	631.72	871	MFOV BB heater off
	10:32:15	632.25	851	Solar port heaters on
	10:32:47	632.78	891	SWICS off
End internal calibration sequence.				
03/16/88	10:39:43	639.72	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
03/16/88	10:47:11	647.18	822	Elevate to solar ports (Sun)
	10:47:43	647.72	814	Azimuth to position A
	10:48:15	648.25	883	Detector bias heater on at level 2
	10:58:23	658.38	831	SMA shutter cycle on
	11:38:55	698.92	832	SMA shutter cycle off
	11:39:59	699.98	811	Azimuth to 0°
	11:40:31	700.52	881	Detector bias heater off
	11:50:07	710.12	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/29/88	12:13:35	733.58	419	Address azimuth position A
	12:14:07	734.12	2xx	Data command, high byte
	12:15:11	735.18	1xx	Data command, low byte
End azimuth angle load commands ( $A = 28.58^\circ$ ).				
Begin preinternal calibration sequence.				
03/30/88	10:47:11	647.18	821	Elevate to internal source (stow)
	10:47:43	647.72	862	WFOV BB heater on at temp. 1
	10:48:15	648.25	872	MFOV BB heater on at temp. 1
	12:24:15	744.25	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/30/88	12:25:19	745.32	8A1	Begin internal calibration
	12:25:51	745.85	881	Detector bias heater off
	12:26:23	746.38	852	Solar port heaters off
	12:26:55	746.92	821	Elevate to internal source (stow)
	12:27:27	747.45	851	Solar port heaters on
	12:29:35	749.58	882	Detector bias heater on at level 1
	12:31:43	751.72	892	SWICS on at level 3
	12:34:55	754.92	881	Detector bias heater off
	12:38:39	758.65	862	WFOV BB heater on at temp. 1
	12:39:11	759.18	872	MFOV BB heater on at temp. 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/30/88	12:40:15	760.25	891	SWICS off
	12:53:35	773.58	883	Detector bias heater on at level 2
	12:55:43	775.72	893	SWICS on at level 2
	12:58:55	778.92	881	Detector bias heater off
	13:02:39	782.65	863	WFOV BB heater on at temp. 2
	13:03:11	783.18	873	MFOV BB heater on at temp. 2
	13:04:15	784.25	891	SWICS off
	13:17:35	797.58	884	Detector bias heater on at level 3
	13:19:43	799.72	894	SWICS on at level 1
	13:21:51	801.85	881	Detector bias heater off
	13:24:31	804.52	852	Solar port heaters off
	13:25:35	805.58	861	WFOV BB heater off
	13:26:07	806.12	871	MFOV BB heater off
	13:26:39	806.65	851	Solar port heaters on
	13:27:11	807.18	891	SWICS off
End internal calibration sequence.				
03/30/88	13:34:07	814.12	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
03/30/88	13:40:31	820.52	822	Elevate to solar ports (Sun)
	13:41:03	821.05	814	Azimuth to position A
	13:41:35	821.58	883	Detector bias heater on at level 2
	13:51:43	831.72	831	SMA shutter cycle on
	14:32:47	872.78	832	SMA shutter cycle off
	14:33:51	873.85	811	Azimuth to 0°
	14:34:23	874.38	881	Detector bias heater off
	14:43:59	883.98	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
04/12/88	15:32:31	932.52	419	Address azimuth position A
	15:33:03	933.05	2xx	Data command, high byte
	15:34:07	934.12	1xx	Data command, low byte
End azimuth angle load commands (A = 75.53°).				
Begin preinternal calibration sequence.				
04/13/88	08:51:27	531.45	821	Elevate to internal source (stow)
	08:51:59	531.98	862	WFOV BB heater on at temp. 1
	08:52:31	532.52	872	MFOV BB heater on at temp. 1
	10:28:31	628.52	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
04/13/88	10:29:03	629.05	8A1	Begin internal calibration
	10:29:35	629.58	881	Detector bias heater off
	10:30:07	630.12	852	Solar port heaters off
	10:30:39	630.65	821	Elevate to internal source (stow)
	10:31:11	631.18	851	Solar port heaters on
	10:33:19	633.32	882	Detector bias heater on at level 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/13/88	10:35:27	635.45	892	SWICS on at level 3
	10:38:39	638.65	881	Detector bias heater off
	10:42:23	642.38	862	WFOV BB heater on at temp. 1
	10:42:55	642.92	872	MFOV BB heater on at temp. 1
	10:43:59	643.98	891	SWICS off
	10:57:19	657.32	883	Detector bias heater on at level 2
	10:59:27	659.45	893	SWICS on at level 2
	11:02:39	662.65	881	Detector bias heater off
	11:06:23	666.38	863	WFOV BB heater on at temp. 2
	11:06:55	666.92	873	MFOV BB heater on at temp. 2
	11:07:59	667.98	891	SWICS off
	11:21:19	681.32	884	Detector bias heater on at level 3
	11:23:27	683.45	894	SWICS on at level 1
	11:25:35	685.58	881	Detector bias heater off
	11:28:15	688.25	852	Solar port heaters off
	11:29:19	689.32	861	WFOV BB heater off
	11:29:51	689.85	871	MFOV BB heater off
	11:30:23	690.38	851	Solar port heaters on
	11:30:55	690.92	891	SWICS off
End internal calibration sequence.				
04/13/88	11:38:23	698.38	823	Elevate to nadir (Earth)
Begin modified solar calibration sequence.				
04/13/88	11:45:19	705.32	822	Elevate to solar ports (Sun)
	11:45:51	705.85	814	Azimuth to position A
	11:46:23	706.38	883	Detector bias heater on at level 2
	11:56:31	716.52	831	SMA shutter cycle on
	12:37:35	757.58	832	SMA shutter cycle off
	12:38:39	758.65	811	Azimuth to 0°
	12:39:11	759.18	881	Detector bias heater off
	12:48:47	768.78	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
04/15/88	14:32:14			Yaw maneuver to X-axis positive
Begin azimuth angle load commands for solar calibration.				
04/26/88	15:23:59	923.98	419	Address azimuth position A
	15:24:31	924.52	2xx	Data command, high byte
	15:25:35	925.58	1xx	Data command, low byte
End azimuth angle load commands (A = 55.43°).				
Begin revised preinternal calibration sequence.				
04/27/88	08:06:07	486.12	882	Detector bias heater on at level 1
	08:08:47	488.78	881	Detector bias heater off
	08:09:19	489.32	883	Detector bias heater on at level 2
	08:11:59	491.98	881	Detector bias heater off
	08:12:31	492.52	884	Detector bias heater on at level 3
	08:15:11	495.18	881	Detector bias heater off
	09:14:23	554.38	821	Elevate to internal source (stow)

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/27/88	09:30:23	570.38	862	WFOV BB heater on at temp. 1
	09:46:23	586.38	872	MFOV BB heater on at temp. 1
	10:51:27	651.45	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
04/27/88	10:53:03	653.05	881	Detector bias heater off
	10:53:35	653.58	852	Solar port heaters off
	10:54:07	654.12	821	Elevate to internal source (stow)
	10:54:39	654.65	851	Solar port heaters on
	10:56:47	656.78	882	Detector bias heater on at level 1
	11:00:31	660.52	892	SWICS on at level 3
	11:03:43	663.72	881	Detector bias heater off
	11:07:27	667.45	862	WFOV BB heater on at temp. 1
	11:07:59	667.98	872	MFOV BB heater on at temp. 1
	11:09:03	669.05	891	SWICS off
	11:22:23	682.38	883	Detector bias heater on at level 2
	11:26:07	686.12	893	SWICS on at level 2
	11:29:19	689.32	881	Detector bias heater off
	11:33:03	693.05	863	WFOV BB heater on at temp. 2
	11:33:35	693.58	873	MFOV BB heater on at temp. 2
	11:34:39	694.65	891	SWICS off
	11:47:59	707.98	884	Detector bias heater on at level 3
	11:51:43	711.72	894	SWICS on at level 1
	11:53:51	713.85	881	Detector bias heater off
	11:56:31	716.52	852	Solar port heaters off
	11:57:35	717.58	861	WFOV BB heater off
	11:58:07	718.12	871	MFOV BB heater off
	11:58:39	718.65	851	Solar port heaters on
	11:59:11	719.18	891	SWICS off
End internal calibration sequence.				
04/27/88	12:06:07	726.12	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
04/27/88	12:13:35	733.58	822	Elevate to solar ports (Sun)
	12:14:07	734.12	814	Azimuth to position A
	12:14:39	734.65	883	Detector bias heater on at level 2
	12:24:47	744.78	831	SMA shutter cycle on
	13:05:51	785.85	832	SMA shutter cycle off
	13:06:23	786.38	881	Detector bias heater off
	13:06:55	786.92	882	Detector bias heater on at level 1
	13:09:35	789.58	881	Detector bias heater off
	13:10:07	790.12	883	Detector bias heater on at level 2
	13:12:47	792.78	881	Detector bias heater off
	13:13:19	793.32	884	Detector bias heater on at level 3
	13:15:59	795.98	881	Detector bias heater off
	13:16:31	796.52	852	Solar port heaters off



Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/27/88	13:32:31	812.52	851	Solar port heaters on
	13:33:03	813.05	821	Elevate to internal source (stow)
	13:49:03	829.05	811	Azimuth to 0°
End revised solar calibration sequence.				
04/27/88	14:14:39	823		Elevate to nadir (Earth)
Begin postcalibration sequence.				
04/27/88	14:33:19	873.32	882	Detector bias heater on at level 1
	14:35:59	875.98	881	Detector bias heater off
	14:36:31	876.52	883	Detector bias heater on at level 2
	14:39:11	879.18	881	Detector bias heater off
	14:39:43	879.72	884	Detector bias heater on at level 3
	14:42:23	882.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
05/10/88	18:13:03	1093.05	419	Address azimuth position A
	18:13:35	1093.58	2xx	Data command, high byte
	18:14:39	1094.65	1xx	Data command, low byte
End azimuth angle load commands (A = 60.98°).				
Begin revised preinternal calibration sequence.				
05/11/88	07:45:19	465.32	882	Detector bias heater on at level 1
	07:47:59	467.98	881	Detector bias heater off
	07:48:31	468.52	883	Detector bias heater on at level 2
	07:51:11	471.18	881	Detector bias heater off
	07:51:43	471.72	884	Detector bias heater on at level 3
	07:54:23	474.38	881	Detector bias heater off
	08:53:35	533.58	821	Elevate to internal source (stow)
	09:09:35	549.58	862	WFOV BB heater on at temp. 1
	09:25:35	565.58	872	MFOV BB heater on at temp. 1
	10:30:39	630.65	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/11/88	10:32:15	632.25	881	Detector bias heater off
	10:32:47	632.78	852	Solar port heaters off
	10:33:19	633.32	821	Elevate to internal source (stow)
	10:33:51	633.85	851	Solar port heaters on
	10:35:59	635.98	882	Detector bias heater on at level 1
	10:39:43	639.72	892	SWICS on at level 3
	10:42:55	642.92	881	Detector bias heater off
	10:46:39	646.65	862	WFOV BB heater on at temp. 1
	10:47:11	647.18	872	MFOV BB heater on at temp. 1
	10:48:15	648.25	891	SWICS off
	11:01:35	661.58	883	Detector bias heater on at level 2
	11:05:19	665.32	893	SWICS on at level 2
	11:08:31	668.52	881	Detector bias heater off
	11:12:15	672.25	863	WFOV BB heater on at temp. 2

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/11/88	11:12:47	672.78	873	MFOV BB heater on at temp. 2
	11:13:51	673.85	891	SWICS off
	11:27:11	687.18	884	Detector bias heater on at level 3
	11:30:55	690.92	894	SWICS on at level 1
	11:33:03	693.05	881	Detector bias heater off
	11:35:43	695.72	852	Solar port heaters off
	11:36:47	696.78	861	WFOV BB heater off
	11:37:19	697.32	871	MFOV BB heater off
	11:37:51	697.85	851	Solar port heaters on
	11:38:23	698.38	891	SWICS off
End internal calibration sequence.				
05/11/88	11:45:19	705.32	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
05/11/88	11:52:47	712.78	822	Elevate to solar ports (Sun)
	11:53:19	713.32	814	Azimuth to position A
	11:53:51	713.85	883	Detector bias heater on at level 2
	12:03:59	723.98	831	SMA shutter cycle on
	12:45:03	765.05	832	SMA shutter cycle off
	12:45:35	765.58	881	Detector bias heater off
	12:46:07	766.12	882	Detector bias heater on at level 1
	12:48:47	768.78	881	Detector bias heater off
	12:49:19	769.32	883	Detector bias heater on at level 2
	12:51:59	771.98	881	Detector bias heater off
	12:52:31	772.52	884	Detector bias heater on at level 3
	12:55:11	775.18	881	Detector bias heater off
	12:55:43	775.72	852	Solar port heaters off
	13:11:43	791.72	851	Solar port heaters on
	13:12:15	792.25	821	Elevate to internal source (stow)
	13:28:15	808.25	811	Azimuth to 0°
End revised solar calibration sequence.				
05/11/88	13:53:51	833.85	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/11/88	14:12:31	852.52	882	Detector bias heater on at level 1
	14:15:11	855.18	881	Detector bias heater off
	14:15:43	855.72	883	Detector bias heater on at level 2
	14:18:23	858.38	881	Detector bias heater off
	14:18:55	858.92	884	Detector bias heater on at level 3
	14:21:35	861.58	881	Detector bias heater off
End postcalibration sequence.				
05/18/88	14:45:18			Yaw maneuver to negative X-axis
Begin azimuth angle load commands for solar calibration.				
05/24/88	14:22:39	862.65	419	Address azimuth position A
	14:23:11	863.18	2xx	Data command, high byte
	14:24:15	864.25	1xx	Data command, low byte
End azimuth angle load commands (A = 65.10°).				

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
05/25/88	09:02:07	542.12	882	Detector bias heater on at level 1
	09:04:47	544.78	881	Detector bias heater off
	09:05:19	545.32	883	Detector bias heater on at level 2
	09:07:59	547.98	881	Detector bias heater off
	09:08:31	548.52	884	Detector bias heater on at level 3
	09:11:11	551.18	881	Detector bias heater off
	10:40:47	640.78	821	Elevate to internal source (stow)
	10:56:47	656.78	862	WFOV BB heater on at temp. 1
	11:12:47	672.78	872	MFOV BB heater on at temp. 1
	12:17:51	737.85	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/25/88	12:19:27	739.45	881	Detector bias heater off
	12:19:59	739.98	852	Solar port heaters off
	12:20:31	740.52	821	Elevate to internal source (stow)
	12:21:03	741.05	851	Solar port heaters on
	12:23:11	743.18	882	Detector bias heater on at level 1
	12:26:55	746.92	892	SWICS on at level 3
	12:30:07	750.12	881	Detector bias heater off
	12:33:51	753.85	862	WFOV BB heater on at temp. 1
	12:34:23	754.38	872	MFOV BB heater on at temp. 1
	12:35:27	755.45	891	SWICS off
	12:48:47	768.78	883	Detector bias heater on at level 2
	12:52:31	772.52	893	SWICS on at level 2
	12:55:43	775.72	881	Detector bias heater off
	12:59:27	779.45	863	WFOV BB heater on at temp. 2
	12:59:59	779.98	873	MFOV BB heater on at temp. 2
	13:01:03	781.05	891	SWICS off
	13:14:23	794.38	884	Detector bias heater on at level 3
	13:18:07	798.12	894	SWICS on at level 1
	13:20:15	800.25	881	Detector bias heater off
	13:22:55	802.92	852	Solar port heaters off
	13:23:59	803.98	861	WFOV BB heater off
	13:24:31	804.52	871	MFOV BB heater off
	13:25:03	805.05	851	Solar port heaters on
		13:25:35	805.58	891
End internal calibration sequence.				
05/25/88	13:32:31	812.52	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
05/25/88	13:39:59	819.98	822	Elevate to solar ports (Sun)
	13:40:31	820.52	814	Azimuth to position A
	13:41:03	821.05	883	Detector bias heater on at level 2
	13:51:11	831.18	831	SMA shutter cycle on
	14:32:15	872.25	832	SMA shutter cycle off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/25/88	14:32:47	872.78	881	Detector bias heater off
	14:33:19	873.32	882	Detector bias heater on at level 1
	14:35:59	875.98	881	Detector bias heater off
	14:36:31	876.52	883	Detector bias heater on at level 2
	14:39:11	879.18	881	Detector bias heater off
	14:39:43	879.72	884	Detector bias heater on at level 3
	14:42:23	882.38	881	Detector bias heater off
	14:42:55	882.92	852	Solar port heaters off
	14:58:55	898.92	851	Solar port heaters on
	14:59:27	899.45	821	Elevate to internal source (stow)
	15:15:27	915.45	811	Azimuth to 0°
End revised solar calibration sequence.				
05/25/88	15:41:03	941.05	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/25/88	17:05:19	1025.32	882	Detector bias heater on at level 1
	17:07:59	1027.98	881	Detector bias heater off
	17:08:31	1028.52	883	Detector bias heater on at level 2
	17:11:11	1031.18	881	Detector bias heater off
	17:11:43	1031.72	884	Detector bias heater on at level 3
	17:14:23	1034.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/01/88	12:31:43	751.72	419	Address azimuth position A
	12:32:15	752.25	2xx	Data command, high byte
	12:33:19	753.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 31.43^\circ$ ).				
Begin revised preinternal calibration sequence.				
06/02/88	00:51:27	51.45	882	Detector bias heater on at level 1
	00:54:07	54.12	881	Detector bias heater off
	00:54:39	54.65	883	Detector bias heater on at level 2
	00:57:19	57.32	881	Detector bias heater off
	00:57:51	57.85	884	Detector bias heater on at level 3
	01:00:31	60.52	881	Detector bias heater off
	02:30:07	150.12	821	Elevate to internal source (stow)
	02:46:07	166.12	862	WFOV BB heater on at temp. 1
	03:02:07	182.12	872	MFOV BB heater on at temp. 1
	04:07:11	247.18	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/02/88	04:08:47	248.78	881	Detector bias heater off
	04:09:19	249.32	852	Solar port heaters off
	04:09:51	249.85	821	Elevate to internal source (stow)
	04:10:23	250.38	851	Solar port heaters on
	04:12:31	252.52	882	Detector bias heater on at level 1
	04:16:15	256.25	892	SWICS on at level 3

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/02/88	04:19:27	259.45	881	Detector bias heater off
	04:23:11	263.18	862	WFOV BB heater on at temp. 1
	04:23:43	263.72	872	MFOV BB heater on at temp. 1
	04:24:47	264.78	891	SWICS off
	04:38:07	278.12	883	Detector bias heater on at level 2
	04:41:51	281.85	893	SWICS on at level 2
	04:45:03	285.05	881	Detector bias heater off
	04:48:47	288.78	863	WFOV BB heater on at temp. 2
	04:49:19	289.32	873	MFOV BB heater on at temp. 2
	04:50:23	290.38	891	SWICS off
	05:03:43	303.72	884	Detector bias heater on at level 3
	05:07:27	307.45	894	SWICS on at level 1
	05:09:35	309.58	881	Detector bias heater off
	05:12:15	312.25	852	Solar port heaters off
	05:13:19	313.32	861	WFOV BB heater off
	05:13:51	313.85	871	MFOV BB heater off
	05:14:23	314.38	851	Solar port heaters on
	05:14:55	314.92	891	SWICS off
End internal calibration sequence.				
06/02/88	05:21:51	321.85	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
06/02/88	05:29:19	329.32	822	Elevate to solar ports (Sun)
	05:29:51	329.85	814	Azimuth to position A
	05:30:23	330.38	883	Detector bias heater on at level 2
	05:40:31	340.52	831	SMA shutter cycle on
	06:21:35	381.58	832	SMA shutter cycle off
	06:22:07	382.12	881	Detector bias heater off
	06:22:39	382.65	882	Detector bias heater on at level 1
	06:25:19	385.32	881	Detector bias heater off
	06:25:51	385.85	883	Detector bias heater on at level 2
	06:28:31	388.52	881	Detector bias heater off
	06:29:03	389.05	884	Detector bias heater on at level 3
	06:31:43	391.72	881	Detector bias heater off
	06:32:15	392.25	852	Solar port heaters off
	06:48:15	408.25	851	Solar port heaters on
	06:48:47	408.78	821	Elevate to internal source (stow)
	07:04:47	424.78	811	Azimuth to 0°
End revised solar calibration sequence.				
06/02/88	07:30:23	450.38	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/02/88	08:54:39	534.65	882	Detector bias heater on at level 1
	08:57:19	537.32	881	Detector bias heater off
	08:57:51	537.85	883	Detector bias heater on at level 2
	09:00:31	540.52	881	Detector bias heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/02/88	09:01:03	541.05	884	Detector bias heater on at level 3
	09:03:43	543.72	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/16/88	12:33:51	753.85	419	Address azimuth position A
	12:34:23	754.38	2xx	Data command, high byte
	12:35:27	755.45	1xx	Data command, low byte
End azimuth angle load commands ( $A = 34.80^\circ$ ).				
Begin revised preinternal calibration sequence.				
06/17/88	07:32:31	452.52	882	Detector bias heater on at level 1
	07:35:11	455.18	881	Detector bias heater off
	07:35:43	455.72	883	Detector bias heater on at level 2
	07:38:23	458.38	881	Detector bias heater off
	07:38:55	458.92	884	Detector bias heater on at level 3
	07:41:35	461.58	881	Detector bias heater off
	09:11:43	551.72	821	Elevate to internal source (stow)
	09:27:43	567.72	862	WFOV B-B heater on at temp. 1
	09:43:43	583.72	872	MFOV B-B heater on at temp. 1
	10:48:47	648.78	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/17/88	10:50:23	650.38	881	Detector bias heater off
	10:50:55	650.92	852	Solar port heaters off
	10:51:27	651.45	821	Elevate to internal source (stow)
	10:51:59	651.98	851	Solar port heaters on
	10:54:07	654.12	882	Detector bias heater on at level 1
	10:57:51	657.85	892	SWICS on at level 3
	11:01:03	661.05	881	Detector bias heater off
	11:04:47	664.78	862	WFOV BB heater on at temp. 1
	11:05:19	665.32	872	MFOV BB heater on at temp. 1
	11:06:23	666.38	891	SWICS off
	11:19:43	679.72	883	Detector bias heater on at level 2
	11:23:27	683.45	893	SWICS on at level 2
	11:26:39	686.65	881	Detector bias heater off
	11:30:23	690.38	863	WFOV BB heater on at temp. 2
	11:30:55	690.92	873	MFOV BB heater on at temp. 2
	11:31:59	691.98	891	SWICS off
	11:45:19	705.32	884	Detector bias heater on at level 3
	11:49:03	709.05	894	SWICS on at level 1
	11:51:11	711.18	881	Detector bias heater off
	11:53:51	713.85	852	Solar port heaters off
	11:54:55	714.92	861	WFOV BB heater off
	11:55:27	715.45	871	MFOV BB heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/17/88	11:55:59	715.98	851	Solar port heaters on
	11:56:31	716.52	891	SWICS off
End internal calibration sequence.				
06/17/88	12:03:27	723.45	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
06/17/88	12:10:55	730.92	822	Elevate to solar ports (Sun)
	12:11:27	731.45	814	Azimuth to position A
	12:11:59	731.98	883	Detector bias heater on at level 2
	12:22:07	742.12	831	SMA shutter cycle on
	13:03:11	783.18	832	SMA shutter cycle off
	13:03:43	783.72	881	Detector bias heater off
	13:04:15	784.25	882	Detector bias heater on at level 1
	13:06:55	786.92	881	Detector bias heater off
	13:07:27	787.45	883	Detector bias heater on at level 2
	13:10:07	790.12	881	Detector bias heater off
	13:10:39	790.65	884	Detector bias heater on at level 3
	13:13:19	793.32	881	Detector bias heater off
	13:13:51	793.85	852	Solar port heaters off
	13:29:51	809.85	851	Solar port heaters on
	13:30:23	810.38	821	Elevate to internal source (stow)
	13:46:23	826.38	811	Azimuth to 0°
End revised solar calibration sequence.				
06/17/88	14:11:59	851.98	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/17/88	15:36:15	936.25	882	Detector bias heater on at level 1
	15:38:55	938.92	881	Detector bias heater off
	15:39:27	939.45	883	Detector bias heater on at level 2
	15:42:07	942.12	881	Detector bias heater off
	15:42:39	942.65	884	Detector bias heater on at level 3
	15:45:19	945.32	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/21/88	18:49:19	1129.32	419	Address azimuth position A
	18:49:51	1129.85	2xx	Data command, high byte
	18:51:27	1131.45	1xx	Data command, low byte
End azimuth angle load commands (A = 56.78°).				
Begin revised preinternal calibration sequence.				
06/22/88	08:31:43	511.72	882	Detector bias heater on at level 1
	08:34:23	514.38	881	Detector bias heater off
	08:34:55	514.92	883	Detector bias heater on at level 2
	08:37:35	517.58	881	Detector bias heater off
	08:38:07	518.12	884	Detector bias heater on at level 3
	08:40:47	520.78	881	Detector bias heater off
	10:10:55	610.92	821	Elevate to internal source (stow)
	10:26:55	626.92	862	WFOV BB heater on at temp. 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/22/88	10:42:55	642.92	872	MFOV BB heater on at temp. 1
	11:47:59	707.98	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/22/88	11:49:35	709.58	881	Detector bias heater off
	11:50:07	710.12	852	Solar port heaters off
	11:50:39	710.65	821	Elevate to internal source (stow)
	11:51:11	711.18	851	Solar port heaters on
	11:53:19	713.32	882	Detector bias heater on at level 1
	11:57:03	717.05	892	SWICS on at level 3
	12:00:15	720.25	881	Detector bias heater off
	12:03:59	723.98	862	WFOV BB heater on at temp. 1
	12:04:31	724.52	872	MFOV BB heater on at temp. 1
	12:05:35	725.58	891	SWICS off
	12:18:55	738.92	883	Detector bias heater on at level 2
	12:22:39	742.65	893	SWICS on at level 2
	12:25:51	745.85	881	Detector bias heater off
	12:29:35	749.58	863	WFOV BB heater on at temp. 2
	12:30:07	750.12	873	MFOV BB heater on at temp. 2
	12:31:11	751.18	891	SWICS off
	12:44:31	764.52	884	Detector bias heater on at level 3
	12:48:15	768.25	894	SWICS on at level 1
	12:50:23	770.38	881	Detector bias heater off
	12:53:03	773.05	852	Solar port heaters off
	12:54:07	774.12	861	WFOV BB heater off
	12:54:39	774.65	871	MFOV BB heater off
	12:55:11	775.18	851	Solar port heaters on
	12:55:43	775.72	891	SWICS off
End internal calibration sequence.				
06/22/88	13:02:39	782.65	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
06/22/88	13:10:07	790.12	822	Elevate to solar ports (Sun)
	13:10:39	790.65	814	Azimuth to position A
	13:11:11	791.18	883	Detector bias heater on at level 2
	13:21:19	801.32	831	SMA shutter cycle on
	14:02:23	842.38	832	SMA shutter cycle off
	14:02:55	842.92	881	Detector bias heater off
	14:03:27	843.45	882	Detector bias heater on at level 1
	14:06:07	846.12	881	Detector bias heater off
	14:06:39	846.65	883	Detector bias heater on at level 2
	14:09:19	849.32	881	Detector bias heater off
	14:09:51	849.85	884	Detector bias heater on at level 3
	14:12:31	852.52	881	Detector bias heater off
	14:13:03	853.05	852	Solar port heaters off
	14:29:03	869.05	851	Solar port heaters on



Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/22/88	14:29:35	869.58	821	Elevate to internal source (stow)
	14:45:35	885.58	811	Azimuth to 0°
End revised solar calibration sequence.				
06/22/88	15:11:11	911.18	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/22/88	16:35:27	995.45	882	Detector bias heater on at level 1
	16:38:07	998.12	881	Detector bias heater off
	16:38:39	998.65	883	Detector bias heater on at level 2
	16:41:19	1001.32	881	Detector bias heater off
	16:41:51	1001.85	884	Detector bias heater on at level 3
	16:44:31	1004.52	881	Detector bias heater off
End postcalibration sequence.				
06/29/88	15:21:18			Yaw maneuver to positive X-axis
Begin azimuth angle load commands for solar calibration.				
07/05/88	16:32:15	992.25	419	Address azimuth position A
	16:32:47	992.78	2xx	Data command, high byte
	16:33:51	993.85	1xx	Data command, low byte
End azimuth angle load commands (A = 69.68°).				
Begin revised preinternal calibration sequence.				
07/06/88	07:49:35	469.58	882	Detector bias heater on at level 1
	07:52:15	472.25	881	Detector bias heater off
	07:52:47	472.78	883	Detector bias heater on at level 2
	07:55:27	475.45	881	Detector bias heater off
	07:55:59	475.98	884	Detector bias heater on at level 3
	07:58:39	478.65	881	Detector bias heater off
	08:57:51	537.85	821	Elevate to internal source (stow)
	09:13:51	553.85	862	WFOV BB heater on at temp. 1
	09:29:51	569.85	872	MFOV BB heater on at temp. 1
	10:34:55	634.92	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
07/06/88	10:36:31	636.52	881	Detector bias heater off
	10:37:03	637.05	852	Solar port heaters off
	10:37:35	637.58	821	Elevate to internal source (stow)
	10:38:07	638.12	851	Solar port heaters on
	10:40:15	640.25	882	Detector bias heater on at level 1
	10:43:59	643.98	892	SWICS on at level 3
	10:47:11	647.18	881	Detector bias heater off
	10:50:55	650.92	862	WFOV BB heater on at temp. 1
	10:51:27	651.45	872	MFOV BB heater on at temp. 1
	10:52:31	652.52	891	SWICS off
	11:05:51	665.85	883	Detector bias heater on at level 2
	11:09:35	669.58	893	SWICS on at level 2
	11:12:47	672.78	881	Detector bias heater off
	11:16:31	676.52	863	WFOV BB heater on at temp. 2

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/06/88	11:17:03	677.05	873	MFOV BB heater on at temp. 2
	11:18:07	678.12	891	SWICS off
	11:31:27	691.45	884	Detector bias heater on at level 3
	11:35:11	695.18	894	SWICS on at level 1
	11:37:19	697.32	881	Detector bias heater off
	11:39:59	699.98	852	Solar port heaters off
	11:41:03	701.05	861	WFOV BB heater off
	11:41:35	701.58	871	MFOV BB heater off
	11:42:07	702.12	851	Solar port heaters on
	11:42:39	702.65	891	SWICS off
End internal calibration sequence.				
07/06/88	11:49:35	709.58	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
07/06/88	11:57:03	717.05	822	Elevate to solar ports (Sun)
	11:57:35	717.58	814	Azimuth to position A
	11:58:07	718.12	883	Detector bias heater on at level 2
	12:08:15	728.25	831	SMA shutter cycle on
	12:49:19	769.32	832	SMA shutter cycle off
	12:49:51	769.85	881	Detector bias heater off
	12:50:23	770.38	882	Detector bias heater on at level 1
	12:53:03	773.05	881	Detector bias heater off
	12:53:35	773.58	883	Detector bias heater on at level 2
	12:56:15	776.25	881	Detector bias heater off
	12:56:47	776.78	884	Detector bias heater on at level 3
	12:59:27	779.45	881	Detector bias heater off
	12:59:59	779.98	852	Solar port heaters off
	13:15:59	795.98	851	Solar port heaters on
	13:16:31	796.52	821	Elevate to internal source (stow)
	13:32:31	812.52	811	Azimuth to 0°
End revised solar calibration sequence.				
07/06/88	13:58:07	838.12	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
07/06/88	14:16:47	856.78	882	Detector bias heater on at level 1
	14:19:27	859.45	881	Detector bias heater off
	14:19:59	859.98	883	Detector bias heater on at level 2
	14:22:39	862.65	881	Detector bias heater off
	14:23:11	863.18	884	Detector bias heater on at level 3
	14:25:51	865.85	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
07/19/88	17:55:59	1075.98	419	Address azimuth position A
	17:57:35	1077.58	2xx	Data command, high byte
	17:58:39	1078.65	1xx	Data command, low byte
End azimuth angle load commands (A = 57.83°).				

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
07/20/88	09:04:15	544.25	882	Detector bias heater on at level 1
	09:06:55	546.92	881	Detector bias heater off
	09:07:27	547.45	883	Detector bias heater on at level 2
	09:10:07	550.12	881	Detector bias heater off
	09:10:39	550.65	884	Detector bias heater on at level 3
	09:13:19	553.32	881	Detector bias heater off
	10:12:31	612.52	821	Elevate to internal source (stow)
	10:28:31	628.52	862	WFOV BB heater on at temp. 1
	10:44:31	644.52	872	MFOV BB heater on at temp. 1
	11:49:35	709.58	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
07/20/88	11:51:11	7711.18	881	Detector bias heater off
	11:51:43	711.72	852	Solar port heaters off
	11:52:15	712.25	821	Elevate to internal source (stow)
	11:52:47	712.78	851	Solar port heaters on
	11:54:55	714.92	882	Detector bias heater on at level 1
	11:58:39	718.65	892	SWICS on at level 3
	12:01:51	721.85	881	Detector bias heater off
	12:05:35	725.58	862	WFOV BB heater on at temp. 1
	12:06:07	726.12	872	MFOV BB heater on at temp. 1
	12:07:11	727.18	891	SWICS off
	12:20:31	740.52	883	Detector bias heater on at level 2
	12:24:15	744.25	893	SWICS on at level 2
	12:27:27	747.45	881	Detector bias heater off
	12:31:11	751.18	863	WFOV BB heater on at temp. 2
	12:31:43	751.72	873	MFOV BB heater on at temp. 2
	12:32:47	752.78	891	SWICS off
	12:46:07	766.12	884	Detector bias heater on at level 3
	12:49:51	769.85	894	SWICS on at level 1
	12:51:59	771.98	881	Detector bias heater off
	12:54:39	774.65	852	Solar port heaters off
	12:55:43	775.72	861	WFOV BB heater off
	12:56:15	776.25	871	MFOV BB heater off
	12:56:47	776.78	851	Solar port heaters on
	12:57:19	777.32	891	SWICS off
End internal calibration sequence.				
07/20/88	13:04:15	784.25	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
07/20/88	13:11:43	791.72	822	Elevate to solar ports (Sun)
	13:12:15	792.25	814	Azimuth to position A
	13:12:47	792.78	883	Detector bias heater on at level 2
	13:22:55	802.92	831	SMA shutter cycle on
	14:03:59	843.98	832	SMA shutter cycle off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/20/88	14:04:31	844.52	881	Detector bias heater off
	14:05:03	845.05	882	Detector bias heater on at level 1
	14:07:43	847.72	881	Detector bias heater off
	14:08:15	848.25	883	Detector bias heater on at level 2
	14:10:55	850.92	881	Detector bias heater off
	14:11:27	851.45	884	Detector bias heater on at level 3
	14:14:07	854.12	881	Detector bias heater off
	14:14:39	854.65	852	Solar port heaters off
	14:30:39	870.65	851	Solar port heaters on
	14:31:11	871.18	821	Elevate to internal source (stow)
	14:47:11	887.18	811	Azimuth to 0°
End revised solar calibration sequence.				
07/20/88	15:12:47	912.78	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
07/20/88	15:31:27	931.45	882	Detector bias heater on at level 1
	15:34:07	934.12	881	Detector bias heater off
	15:34:39	934.65	883	Detector bias heater on at level 2
	15:37:19	937.32	881	Detector bias heater off
	15:37:51	937.85	884	Detector bias heater on at level 3
	15:40:31	940.52	881	Detector bias heater off
End postcalibration sequence.				
07/28/88	14:38:06			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
08/02/88	12:21:35	741.58	419	Address azimuth position A
	12:22:39	742.65	2xx	Data command, high byte
	12:23:43	743.72	1xx	Data command, low byte
End azimuth angle load commands ( $A = 77.10^\circ$ ).				
Begin revised preinternal calibration sequence.				
08/03/88	08:46:07	526.12	882	Detector bias heater on at level 1
	08:48:47	528.78	881	Detector bias heater off
	08:49:19	529.32	883	Detector bias heater on at level 2
	08:51:59	531.98	881	Detector bias heater off
	08:52:31	532.52	884	Detector bias heater on at level 3
	08:55:11	535.18	881	Detector bias heater off
	10:24:47	624.78	821	Elevate to internal source (stow)
	10:40:47	640.78	862	WFOV BB heater on at temp. 1
	10:56:47	656.78	872	MFOV BB heater on at temp. 1
	12:01:51	721.85	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/03/88	12:03:27	723.45	881	Detector bias heater off
	12:03:59	723.98	852	Solar port heaters off
	12:04:31	724.52	821	Elevate to internal source (stow)
	12:05:03	725.05	851	Solar port heaters on
	12:07:11	727.18	882	Detector bias heater on at level 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/03/88	12:10:55	730.92	892	SWICS on at level 3
	12:14:07	734.12	881	Detector bias heater off
	12:17:51	737.85	862	WFOV BB heater on at temp. 1
	12:18:23	738.38	872	MFOV BB heater on at temp. 1
	12:19:27	739.45	891	SWICS off
	12:32:47	752.78	883	Detector bias heater on at level 2
	12:36:31	756.52	893	SWICS on at level 2
	12:39:43	759.72	881	Detector bias heater off
	12:43:27	763.45	863	WFOV BB heater on at temp. 2
	12:43:59	763.98	873	MFOV BB heater on at temp. 2
	12:45:03	765.05	891	SWICS off
	12:58:23	778.38	884	Detector bias heater on at level 3
	13:02:07	782.12	894	SWICS on at level 1
	13:04:15	784.25	881	Detector bias heater off
	13:06:55	786.92	852	Solar port heaters off
	13:07:59	787.98	861	WFOV BB heater off
	13:08:31	788.52	871	MFOV BB heater off
	13:09:03	789.05	851	Solar port heaters on
	13:09:35	789.58	891	SWICS off
End internal calibration sequence.				
08/03/88	13:16:31	796.52	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/03/88	13:23:59	803.98	822	Elevate to solar ports (Sun)
	13:24:31	804.52	814	Azimuth to position A
	13:25:03	805.05	883	Detector bias heater on at level 2
	13:35:11	815.18	831	SMA shutter cycle on
	14:16:15	856.25	832	SMA shutter cycle off
	14:16:47	856.78	881	Detector bias heater off
	14:17:19	857.32	882	Detector bias heater on at level 1
	14:19:59	859.98	881	Detector bias heater off
	14:20:31	860.52	883	Detector bias heater on at level 2
	14:23:11	863.18	881	Detector bias heater off
	14:23:43	863.72	884	Detector bias heater on at level 3
	14:26:23	866.38	881	Detector bias heater off
	14:26:55	866.92	852	Solar port heaters off
	14:42:55	882.92	851	Solar port heaters on
	14:43:27	883.45	821	Elevate to internal source (stow)
	14:59:27	899.45	811	Azimuth to 0°
End revised solar calibration sequence.				
08/03/88	15:25:03	925.05	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/03/88	16:49:19	1009.32	882	Detector bias heater on at level 1
	16:51:59	1011.98	881	Detector bias heater off
	16:52:31	1012.52	883	Detector bias heater on at level 2
	16:55:11	1015.18	881	Detector bias heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/03/88	16:55:43	1015.72	884	Detector bias heater on at level 3
	16:58:23	1018.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/14/88	16:44:31	1004.52	419	Address azimuth position A
	16:45:03	1005.05	2xx	Data command, high byte
	16:46:07	1006.12	1xx	Data command, low byte
End azimuth angle load commands ( $A = 30.08^\circ$ ).				
Begin revised preinternal calibration sequence.				
08/15/88	01:23:27	83.45	882	Detector bias heater on at level 1
	01:26:07	86.12	881	Detector bias heater off
	01:26:39	86.65	883	Detector bias heater on at level 2
	01:29:19	89.32	881	Detector bias heater off
	01:29:51	89.85	884	Detector bias heater on at level 3
	01:32:31	92.52	881	Detector bias heater off
	03:02:39	182.65	821	Elevate to internal source (stow)
	03:18:39	198.65	862	WFOV BB heater on at temp. 1
	03:34:39	214.65	872	MFOV BB heater on at temp. 1
	04:39:43	279.72	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/15/88	04:41:19	281.32	881	Detector bias heater off
	04:41:51	281.85	852	Solar port heaters off
	04:42:23	282.38	821	Elevate to internal source (stow)
	04:42:55	282.92	851	Solar port heaters on
	04:45:03	285.05	882	Detector bias heater on at level 1
	04:48:47	288.78	892	SWICS on at level 3
	04:51:59	291.98	881	Detector bias heater off
	04:55:43	295.72	862	WFOV BB heater on at temp. 1
	04:56:15	296.25	872	MFOV BB heater on at temp. 1
	04:57:19	297.32	891	SWICS off
	05:10:39	310.65	883	Detector bias heater on at level 2
	05:14:23	314.38	893	SWICS on at level 2
	05:17:35	317.58	881	Detector bias heater off
	05:21:19	321.32	863	WFOV BB heater on at temp. 2
	05:21:51	321.85	873	MFOV BB heater on at temp. 2
	05:22:55	322.92	891	SWICS off
	05:36:15	336.25	884	Detector bias heater on at level 3
	05:39:59	339.98	894	SWICS on at level 1
	05:42:07	342.12	881	Detector bias heater off
	05:44:47	344.78	852	Solar port heaters off
	05:45:51	345.85	861	WFOV BB heater off
	05:46:23	346.38	871	MFOV BB heater off

Table 9. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/15/88	05:46:55	346.92	851	Solar port heaters on
	05:47:27	347.45	891	SWICS off
End internal calibration sequence.				
08/15/88	05:54:23	354.38	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/15/88	06:01:51	361.85	822	Elevate to solar ports (Sun)
	06:02:23	362.38	814	Azimuth to position A
	06:02:55	362.92	883	Detector bias heater on at level 2
	06:13:03	373.05	831	SMA shutter cycle on
	06:54:07	414.12	832	SMA shutter cycle off
	06:54:39	414.65	881	Detector bias heater off
	06:55:11	415.18	882	Detector bias heater on at level 1
	06:57:51	417.85	881	Detector bias heater off
	06:58:23	418.38	883	Detector bias heater on at level 2
	07:01:03	421.05	881	Detector bias heater off
	07:01:35	421.58	884	Detector bias heater on at level 3
	07:04:15	424.25	881	Detector bias heater off
	07:04:47	424.78	852	Solar port heaters off
	07:20:47	440.78	851	Solar port heaters on
	07:21:19	441.32	821	Elevate to internal source (stow)
	07:37:19	457.32	811	Azimuth to 0°
End revised solar calibration sequence.				
08/15/88	08:02:55	482.92	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/15/88	09:27:11	567.18	882	Detector bias heater on at level 1
	09:29:51	569.85	881	Detector bias heater off
	09:30:23	570.38	883	Detector bias heater on at level 2
	09:33:03	573.05	881	Detector bias heater off
	09:33:53	573.58	884	Detector bias heater on at level 3
	09:36:15	576.25	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/25/88	12:08:47	728.78	419	Address azimuth position A
	12:09:19	729.32	2xx	Data command, high byte
	12:10:23	730.38	1xx	Data command, low byte
End azimuth angle load commands (A = 30.68°).				
Begin revised preinternal calibration sequence.				
08/26/88	03:52:15	232.25	882	Detector bias heater on at level 1
	03:54:55	234.92	881	Detector bias heater off
	03:55:27	235.45	883	Detector bias heater on at level 2
	03:58:07	238.12	881	Detector bias heater off
	03:58:39	238.65	884	Detector bias heater on at level 3
	04:01:19	241.32	881	Detector bias heater off
	05:31:27	331.45	821	Elevate to internal source (stow)
	05:47:27	347.45	862	WFOV BB heater on at temp. 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/26/88	06:03:27	363.45	872	MFOV BB heater on at temp. 1
	07:08:31	428.52	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/26/88	07:10:07	430.12	881	Detector bias heater off
	07:10:39	430.65	852	Solar port heaters off
	07:11:11	431.18	821	Elevate to internal source (stow)
	07:11:43	431.72	851	Solar port heaters on
	07:13:51	433.85	882	Detector bias heater on at level 1
	07:17:35	437.58	892	SWICS on at level 3
	07:20:47	440.78	881	Detector bias heater off
	07:24:31	444.52	862	WFOV BB heater on at temp. 1
	07:25:03	445.05	872	MFOV BB heater on at temp. 1
	07:26:07	446.12	891	SWICS off
	07:39:27	459.45	883	Detector bias heater on at level 2
	07:43:11	463.18	893	SWICS on at level 2
	07:46:23	466.38	881	Detector bias heater off
	07:50:07	470.12	863	WFOV BB heater on at temp. 2
	07:50:39	470.65	873	MFOV BB heater on at temp. 2
	07:51:43	471.72	891	SWICS off
	08:05:03	485.05	884	Detector bias heater on at level 3
	08:08:47	488.78	894	SWICS on at level 1
	08:10:55	490.92	881	Detector bias heater off
	08:13:35	493.58	852	Solar port heaters off
	08:14:39	494.65	861	WFOV BB heater off
	08:15:11	495.18	871	MFOV BB heater off
	08:15:43	495.72	851	Solar port heaters on
	08:16:15	496.25	891	SWICS off
End internal calibration sequence.				
08/26/88	08:23:11	503.18	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/26/88	08:30:39	510.65	822	Elevate to solar ports (Sun)
	08:31:11	511.18	814	Azimuth to position A
	08:31:43	511.72	883	Detector bias heater on at level 2
	08:41:51	521.85	831	SMA shutter cycle on
	09:22:55	562.92	832	SMA shutter cycle off
	09:23:27	563.45	881	Detector bias heater off
	09:23:59	563.98	882	Detector bias heater on at level 1
	09:26:39	566.65	881	Detector bias heater off
	09:27:11	567.18	883	Detector bias heater on at level 2
	09:29:51	569.85	881	Detector bias heater off
	09:30:23	570.38	884	Detector bias heater on at level 3
	09:33:03	573.05	881	Detector bias heater off
	09:33:35	573.58	852	Solar port heaters off
	09:49:35	589.58	851	Solar port heaters on



Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/26/88	09:50:07	590.12	821	Elevate to internal source (stow)
	10:06:07	606.12	811	Azimuth to 0°
End revised solar calibration sequence.				
08/26/88	10:31:43	631.72	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/26/88	11:55:59	715.98	882	Detector bias heater on at level 1
	11:58:39	718.65	881	Detector bias heater off
	11:59:11	719.18	883	Detector bias heater on at level 2
	12:01:51	721.85	881	Detector bias heater off
	12:02:23	722.38	884	Detector bias heater on at level 3
	12:05:03	725.05	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/30/88	13:19:11	799.18	419	Address azimuth position A
	13:19:43	799.72	2xx	Data command, high byte
	13:20:47	800.78	1xx	Data command, low byte
End azimuth angle load commands (A = 51.83°).				
Begin revised preinternal calibration sequence.				
08/31/88	08:07:43	487.72	882	Detector bias heater on at level 1
	08:10:23	490.38	881	Detector bias heater off
	08:10:55	490.92	883	Detector bias heater on at level 2
	08:13:35	493.58	881	Detector bias heater off
	08:14:07	494.12	884	Detector bias heater on at level 3
	08:16:47	496.78	881	Detector bias heater off
	09:46:55	586.92	821	Elevate to internal source (stow)
	10:02:55	602.92	862	WFOV BB heater on at temp. 1
	10:18:55	618.92	872	MFOV BB heater on at temp. 1
	11:23:59	683.98	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/31/88	11:25:35	685.58	881	Detector bias heater off
	11:26:07	686.12	852	Solar port heaters off
	11:26:39	686.65	821	Elevate to internal source (stow)
	11:27:11	687.18	851	Solar port heaters on
	11:29:19	689.32	882	Detector bias heater on at level 1
	11:33:03	693.05	892	SWICS on at level 3
	11:36:15	696.25	881	Detector bias heater off
	11:39:59	699.98	862	WFOV BB heater on at temp. 1
	11:40:31	700.52	872	MFOV BB heater on at temp. 1
	11:41:35	701.58	891	SWICS off
	11:54:55	714.92	883	Detector bias heater on at level 2
	11:58:39	718.65	893	SWICS on at level 2
	12:01:51	721.85	881	Detector bias heater off
	12:05:35	725.58	863	WFOV BB heater on at temp. 2
	12:06:07	726.12	873	MFOV BB heater on at temp. 2

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/31/88	12:07:11	727.18	891	SWICS off
	12:20:31	740.52	884	Detector bias heater on at level 3
	12:24:15	744.25	894	SWICS on at level 1
	12:26:23	746.38	881	Detector bias heater off
	12:29:03	749.05	852	Solar port heaters off
	12:30:07	750.12	861	WFOV BB heater off
	12:30:39	750.65	871	MFOV BB heater off
	12:31:11	751.18	851	Solar port heaters on
	12:31:43	751.72	891	SWICS off
End internal calibration sequence.				
08/31/88	12:38:39	758.65	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/31/88	12:46:07	766.12	822	Elevate to solar ports (Sun)
	12:46:39	766.65	814	Azimuth to position A
	12:47:11	767.18	883	Detector bias heater on at level 2
	12:57:19	777.32	831	SMA shutter cycle on
	13:38:23	818.38	832	SMA shutter cycle off
	13:38:55	818.92	881	Detector bias heater off
	13:39:27	819.45	882	Detector bias heater on at level 1
	13:42:07	822.12	881	Detector bias heater off
	13:42:39	822.65	883	Detector bias heater on at level 2
	13:45:19	825.32	881	Detector bias heater off
	13:45:51	825.85	884	Detector bias heater on at level 3
	13:48:31	828.52	881	Detector bias heater off
	13:49:03	829.05	852	Solar port heaters off
	14:05:03	845.05	851	Solar port heaters on
	14:05:35	845.58	821	Elevate to internal source (stow)
	14:21:35	861.58	811	Azimuth to 0°
End revised solar calibration sequence.				
08/31/88	14:47:11	887.18	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/31/88	16:11:27	971.45	882	Detector bias heater on at level 1
	16:14:07	974.12	881	Detector bias heater off
	16:14:39	974.65	883	Detector bias heater on at level 2
	16:17:19	977.32	881	Detector bias heater off
	16:17:51	977.85	884	Detector bias heater on at level 3
	16:20:31	980.52	881	Detector bias heater off
End postcalibration sequence.				
09/07/88	14:51:10			Yaw maneuver to X-axis positive
Begin azimuth angle load commands for solar calibration.				
09/13/88	13:54:55	834.92	419	Address azimuth position A
	13:55:27	835.45	2xx	Data command, high byte
	13:56:31	836.52	1xx	Data command, low byte
End azimuth angle load commands (A = 67.50°).				

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
09/14/88	09:01:03	541.05	882	Detector bias heater on at level 1
	09:03:43	543.72	881	Detector bias heater off
	09:04:15	544.25	883	Detector bias heater on at level 2
	09:06:55	546.92	881	Detector bias heater off
	09:07:27	547.45	884	Detector bias heater on at level 3
	09:10:07	550.12	881	Detector bias heater off
	10:09:19	609.32	821	Elevate to internal source (stow)
	10:25:19	625.32	862	WFOV BB heater on at temp. 1
	10:41:19	641.32	872	MFOV BB heater on at temp. 1
	11:46:23	706.38	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
09/14/88	11:47:59	707.98	881	Detector bias heater off
	11:48:31	708.52	852	Solar port heaters off
	11:49:03	709.05	821	Elevate to internal source (stow)
	11:49:35	709.58	851	Solar port heaters on
	11:51:43	711.72	882	Detector bias heater on at level 1
	11:55:27	715.45	892	SWICS on at level 3
	11:58:39	718.65	881	Detector bias heater off
	12:02:23	722.38	862	WFOV BB heater on at temp. 1
	12:02:55	722.92	872	MFOV BB heater on at temp. 1
	12:03:59	723.98	891	SWICS off
	12:17:19	737.32	883	Detector bias heater on at level 2
	12:21:03	741.05	893	SWICS on at level 2
	12:24:15	744.25	881	Detector bias heater off
	12:27:59	747.98	863	WFOV BB heater on at temp. 2
	12:28:31	748.52	873	MFOV BB heater on at temp. 2
	12:29:35	749.58	891	SWICS off
	12:42:55	762.92	884	Detector bias heater on at level 3
	12:46:39	766.65	894	SWICS on at level 1
	12:48:47	768.78	881	Detector bias heater off
	12:51:27	771.45	852	Solar port heaters off
	12:52:31	772.52	861	WFOV BB heater off
	12:53:03	773.05	871	MFOV BB heater off
	12:53:35	773.58	851	Solar port heaters on
	12:54:07	774.12	891	SWICS off
End internal calibration sequence.				
09/14/88	13:01:03	781.05	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
09/14/88	13:08:31	788.52	822	Elevate to solar ports (Sun)
	13:09:03	789.05	814	Azimuth to position A
	13:09:35	789.58	883	Detector bias heater on at level 2
	13:19:43	799.72	831	SMA shutter cycle on
	14:00:47	840.78	832	SMA shutter cycle off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/14/88	14:01:19	841.32	881	Detector bias heater off
	14:01:51	841.85	882	Detector bias heater on at level 1
	14:04:31	844.52	881	Detector bias heater off
	14:05:03	845.05	883	Detector bias heater on at level 2
	14:07:43	847.72	881	Detector bias heater off
	14:08:15	848.25	884	Detector bias heater on at level 3
	14:10:55	850.92	881	Detector bias heater off
	14:11:27	851.45	852	Solar port heaters off
	14:27:27	867.45	851	Solar port heaters on
	14:27:59	867.98	821	Elevate to internal source (stow)
	14:43:59	883.98	811	Azimuth to 0°
End revised solar calibration sequence.				
09/14/88	15:09:35	909.58	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
09/14/88	15:28:15	928.25	882	Detector bias heater on at level 1
	15:30:55	930.92	881	Detector bias heater off
	15:31:27	931.45	883	Detector bias heater on at level 2
	15:34:07	934.12	881	Detector bias heater off
	15:34:39	934.65	884	Detector bias heater on at level 3
	15:37:19	937.32	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
09/27/88	12:14:07	734.12	419	Address azimuth position A
	12:14:39	734.65	2xx	Data command, high byte
	12:15:43	735.72	1xx	Data command, low byte
End azimuth angle load commands ( $A = 29.18^\circ$ ).				
Begin revised preinternal calibration sequence.				
09/28/88	08:43:27	523.45	882	Detector bias heater on at level 1
	08:46:07	526.12	881	Detector bias heater off
	08:46:39	526.65	883	Detector bias heater on at level 2
	08:49:19	529.32	881	Detector bias heater off
	08:49:51	529.85	884	Detector bias heater on at level 3
	08:52:31	532.52	881	Detector bias heater off
	09:51:43	591.72	821	Elevate to internal source (stow)
	10:07:43	607.72	862	WFOV BB heater on at temp. 1
	10:23:43	623.72	872	MFOV BB heater on at temp. 1
	11:28:47	688.78	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
09/28/88	11:30:23	690.38	881	Detector bias heater off
	11:30:55	690.92	852	Solar port heaters off
	11:31:27	691.45	821	Elevate to internal source (stow)
	11:31:59	691.98	851	Solar port heaters on
	11:34:07	694.12	882	Detector bias heater on at level 1
	11:37:51	697.85	892	SWICS on at level 3

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/28/88	11:41:03	701.05	881	Detector bias heater off
	11:44:47	704.78	862	WFOV BB heater on at temp. 1
	11:45:19	705.32	872	MFOV BB heater on at temp. 1
	11:46:23	706.38	891	SWICS off
	11:59:43	719.72	883	Detector bias heater on at level 2
	12:03:27	723.45	893	SWICS on at level 2
	12:06:39	726.65	881	Detector bias heater off
	12:10:23	730.38	863	WFOV BB heater on at temp. 2
	12:10:55	730.92	873	MFOV BB heater on at temp. 2
	12:11:59	731.98	891	SWICS off
	12:25:19	745.32	884	Detector bias heater on at level 3
	12:29:03	749.05	894	SWICS on at level 1
	12:31:11	751.18	881	Detector bias heater off
	12:33:51	753.85	852	Solar port heaters off
	12:34:55	754.92	861	WFOV BB heater off
	12:35:27	755.45	871	MFOV BB heater off
	12:35:59	755.98	851	Solar port heaters on
	12:36:31	756.52	891	SWICS off
End internal calibration sequence.				
09/28/88	12:43:27	763.45	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
09/28/88	12:50:55	770.92	822	Elevate to solar ports (Sun)
	12:51:27	771.45	814	Azimuth to position A
	12:51:59	771.98	883	Detector bias heater on at level 2
	13:02:07	782.12	831	SMA shutter cycle on
	13:43:11	823.18	832	SMA shutter cycle off
	13:43:43	823.72	881	Detector bias heater off
	13:44:15	824.25	882	Detector bias heater on at level 1
	13:46:55	826.92	881	Detector bias heater off
	13:47:27	827.45	883	Detector bias heater on at level 2
	13:50:07	830.12	881	Detector bias heater off
	13:50:39	830.65	884	Detector bias heater on at level 3
	13:53:19	833.32	881	Detector bias heater off
	13:53:51	833.85	852	Solar port heaters off
	14:09:51	849.85	851	Solar port heaters on
	14:10:23	850.38	821	Elevate to internal source (stow)
	14:26:23	866.38	811	Azimuth to 0°
End revised solar calibration sequence.				
09/28/88	14:51:59	891.98	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
09/28/88	15:10:39	910.65	882	Detector bias heater on at level 1
	15:13:19	913.32	881	Detector bias heater off
	15:13:51	913.85	883	Detector bias heater on at level 2
	15:16:31	916.52	881	Detector bias heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/28/88	15:17:03	917.05	884	Detector bias heater on at level 3
	15:19:43	919.72	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
10/11/88	15:21:19	921.32	419	Address azimuth position A
	15:21:51	921.85	2xx	Data command, high byte
	15:23:27	923.45	1xx	Data command, low byte
End azimuth angle load commands ( $A = 72.83^\circ$ ).				
Begin revised preinternal calibration sequence.				
10/12/88	08:16:47	496.78	882	Detector bias heater on at level 1
	08:19:27	499.45	881	Detector bias heater off
	08:19:59	499.98	883	Detector bias heater on at level 2
	08:22:39	502.65	881	Detector bias heater off
	08:23:11	503.18	884	Detector bias heater on at level 3
	08:25:51	505.85	881	Detector bias heater off
	09:25:03	565.05	821	Elevate to internal source (stow)
	09:41:03	581.05	862	WFOV BB heater on at temp. 1
	09:57:03	597.05	872	MFOV BB heater on at temp. 1
	11:02:07	662.12	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
10/12/88	11:03:43	663.72	881	Detector bias heater off
	11:04:15	664.25	852	Solar port heaters off
	11:04:47	664.78	821	Elevate to internal source (stow)
	11:05:19	665.32	851	Solar port heaters on
	11:07:27	667.45	882	Detector bias heater on at level 1
	11:11:11	671.18	892	SWICS on at level 3
	11:14:23	674.38	881	Detector bias heater off
	11:18:07	678.12	862	WFOV BB heater on at temp. 1
	11:18:39	678.65	872	MFOV BB heater on at temp. 1
	11:19:43	679.72	891	SWICS off
	11:33:03	693.05	883	Detector bias heater on at level 2
	11:36:47	696.78	893	SWICS on at level 2
	11:39:59	699.98	881	Detector bias heater off
	11:43:43	703.72	863	WFOV BB heater on at temp. 2
	11:44:15	704.25	873	MFOV BB heater on at temp. 2
	11:45:19	705.32	891	SWICS off
	11:58:39	718.65	884	Detector bias heater on at level 3
	12:02:23	722.38	894	SWICS on at level 1
	12:04:31	724.52	881	Detector bias heater off
	12:07:11	727.18	852	Solar port heaters off
	12:08:15	728.25	861	WFOV BB heater off
	12:08:47	728.78	871	MFOV BB heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/12/88	12:09:19	729.32	851	Solar port heaters on
	12:09:51	729.85	891	SWICS off
End internal calibration sequence.				
10/12/88	12:16:47	736.78	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
10/12/88	12:24:15	744.25	822	Elevate to solar ports (Sun)
	12:24:47	744.78	814	Azimuth to position A
	12:25:19	745.32	883	Detector bias heater on at level 2
	12:35:27	755.45	831	SMA shutter cycle on
	13:16:31	796.52	832	SMA shutter cycle off
	13:17:03	797.05	881	Detector bias heater off
	13:17:35	797.58	882	Detector bias heater on at level 1
	13:20:15	800.25	881	Detector bias heater off
	13:20:47	800.78	883	Detector bias heater on at level 2
	13:23:27	803.45	881	Detector bias heater off
	13:23:59	803.98	884	Detector bias heater on at level 3
	13:26:39	806.65	881	Detector bias heater off
	13:27:11	807.18	852	Solar port heaters off
	13:43:11	823.18	851	Solar port heaters on
	13:43:43	823.72	821	Elevate to internal source (stow)
	13:59:43	839.72	811	Azimuth to 0°
End revised solar calibration sequence.				
10/12/88	14:25:19	865.32	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
10/12/88	14:43:59	883.98	882	Detector bias heater on at level 1
	14:46:39	886.65	881	Detector bias heater off
	14:47:11	887.18	883	Detector bias heater on at level 2
	14:49:51	889.85	881	Detector bias heater off
	14:50:23	890.38	884	Detector bias heater on at level 3
	14:53:03	893.05	881	Detector bias heater off
End postcalibration sequence.				
10/14/88	15:54:06			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
10/25/88	20:13:35	1213.58	419	Address azimuth position A
	20:14:07	1214.12	2xx	Data command, high byte
	20:14:39	1214.65	1xx	Data command, low byte
End azimuth angle load commands ( $A = 56.63^\circ$ ).				
Begin revised preinternal calibration sequence.				
10/26/88	07:55:59	475.98	882	Detector bias heater on at level 1
	07:58:39	478.65	881	Detector bias heater off
	07:59:11	479.18	883	Detector bias heater on at level 2
	08:01:51	481.85	881	Detector bias heater off
	08:02:23	482.38	884	Detector bias heater on at level 3
	08:05:03	485.05	881	Detector bias heater off
	09:35:11	575.18	821	Elevate to internal source (stow)

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/26/88	09:51:11	591.18	862	WFOV BB heater on at temp. 1
	10:07:11	607.18	872	MFOV BB heater on at temp. 1
	11:12:15	672.25	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
10/26/88	11:13:51	673.85	881	Detector bias heater off
	11:14:23	674.38	852	Solar port heaters off
	11:14:55	674.92	821	Elevate to internal source (stow)
	11:15:27	675.45	851	Solar port heaters on
	11:17:35	677.58	882	Detector bias heater on at level 1
	11:21:19	681.32	892	SWICS on at level 3
	11:24:31	684.52	881	Detector bias heater off
	11:28:15	688.25	862	WFOV BB heater on at temp. 1
	11:28:47	688.78	872	MFOV BB heater on at temp. 1
	11:29:51	689.85	891	SWICS off
	11:43:11	703.18	883	Detector bias heater on at level 2
	11:46:55	706.92	893	SWICS on at level 2
	11:50:07	710.12	881	Detector bias heater off
	11:53:51	713.85	863	WFOV BB heater on at temp. 2
	11:54:23	714.38	873	MFOV BB heater on at temp. 2
	11:55:27	715.45	891	SWICS off
	12:08:47	728.78	884	Detector bias heater on at level 3
	12:12:31	732.52	894	SWICS on at level 1
	12:14:39	734.65	881	Detector bias heater off
	12:17:19	737.32	852	Solar port heaters off
	12:18:23	738.38	861	WFOV BB heater off
	12:18:55	738.92	871	MFOV BB heater off
	12:19:27	739.45	851	Solar port heaters on
	12:19:59	739.98	891	SWICS off
End internal calibration sequence.				
10/26/88	12:26:55	746.92	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
10/26/88	12:34:23	754.38	822	Elevate to solar ports (Sun)
	12:34:55	754.92	814	Azimuth to position A
	12:35:27	755.45	883	Detector bias heater on at level 2
	12:45:35	765.58	831	SMA shutter cycle on
	13:26:39	806.65	832	SMA shutter cycle off
	13:27:11	807.18	881	Detector bias heater off
	13:27:43	807.72	882	Detector bias heater on at level 1
	13:30:23	810.38	881	Detector bias heater off
	13:30:55	810.92	883	Detector bias heater on at level 2
	13:33:35	813.58	881	Detector bias heater off
	13:34:07	814.12	884	Detector bias heater on at level 3
	13:36:47	816.78	881	Detector bias heater off
	13:37:19	817.32	852	Solar port heaters off



Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/26/88	13:53:19	833.32	851	Solar port heaters on
	13:53:51	833.85	821	Elevate to internal source (stow)
	14:09:51	849.85	811	Azimuth to 0°
End revised solar calibration sequence.				
10/26/88	14:35:27	875.45	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
10/26/88	15:59:43	959.72	882	Detector bias heater on at level 1
	16:02:23	962.38	881	Detector bias heater off
	16:02:55	962.92	883	Detector bias heater on at level 2
	16:06:07	966.12	881	Detector bias heater on at level 3
	16:11:27	971.45	884	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
11/08/88	14:31:43	871.72	419	Address azimuth position A
	14:32:15	872.25	2xx	Data command, high byte
	14:33:19	873.32	1xx	Data command, low byte
End azimuth angle load commands (A = 58.13°).				
Begin revised preinternal calibration sequence.				
11/09/88	07:33:03	453.05	882	Detector bias heater on at level 1
	07:35:43	455.72	881	Detector bias heater off
	07:36:15	456.25	883	Detector bias heater on at level 2
	07:38:55	458.92	881	Detector bias heater off
	07:39:27	459.45	884	Detector bias heater on at level 3
	07:42:07	462.12	881	Detector bias heater off
	09:12:15	552.25	821	Elevate to internal source (stow)
	09:28:15	568.25	862	WFOV BB heater on at temp. 1
	09:44:15	584.25	872	MFOV BB heater on at temp. 1
	10:49:19	649.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/09/88	10:50:55	650.92	881	Detector bias heater off
	10:51:27	651.45	852	Solar port heaters off
	10:51:59	651.98	821	Elevate to internal source (stow)
	10:52:31	652.52	851	Solar port heaters on
	10:54:39	654.65	882	Detector bias heater on at level 1
	10:58:23	658.38	892	SWICS on at level 3
	11:01:35	661.58	881	Detector bias heater off
	11:05:19	665.32	862	WFOV BB heater on at temp. 1
	11:05:51	665.85	872	MFOV BB heater on at temp. 1
	11:06:55	666.92	891	SWICS off
	11:20:15	680.25	883	Detector bias heater on at level 2
	11:23:59	683.98	893	SWICS on at level 2
	11:27:11	687.18	881	Detector bias heater off
	11:30:55	690.92	863	WFOV BB heater on at temp. 2
	11:31:27	691.45	873	MFOV BB heater on at temp. 2

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/09/88	11:32:31	692.52	891	SWICS off
	11:45:51	705.85	884	Detector bias heater on at level 3
	11:49:35	709.58	894	SWICS on at level 1
	11:51:43	711.72	881	Detector bias heater off
	11:54:23	714.38	852	Solar port heaters off
	11:55:27	715.45	861	WFOV BB heater off
	11:55:59	715.98	871	MFOV BB heater off
	11:56:31	716.52	851	Solar port heaters on
	11:57:03	717.05	891	SWICS off
End internal calibration sequence.				
11/09/88	12:03:59	723.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
11/09/88	12:11:27	731.45	822	Elevate to solar ports (Sun)
	12:11:59	731.98	814	Azimuth to position A
	12:12:31	732.52	883	Detector bias heater on at level 2
	12:22:39	742.65	831	SMA shutter cycle on
	13:03:43	783.72	832	SMA shutter cycle off
	13:04:15	784.25	881	Detector bias heater off
	13:04:47	784.78	882	Detector bias heater on at level 1
	13:07:27	787.45	881	Detector bias heater off
	13:07:59	787.98	883	Detector bias heater on at level 2
	13:10:39	790.65	881	Detector bias heater off
	13:11:11	791.18	884	Detector bias heater on at level 3
	13:13:51	793.85	881	Detector bias heater off
	13:14:23	794.38	852	Solar port heaters off
	13:30:23	810.38	851	Solar port heaters on
	13:30:55	810.92	821	Elevate to internal source (stow)
	13:46:55	826.92	811	Azimuth to 0°
End revised solar calibration sequence.				
11/09/88	14:12:31	852.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/09/88	15:36:47	936.78	882	Detector bias heater on at level 1
	15:39:27	939.45	881	Detector bias heater off
	15:39:59	939.98	883	Detector bias heater on at level 2
	15:42:39	942.65	881	Detector bias heater off
	15:43:11	943.18	884	Detector bias heater on at level 3
	15:45:51	945.85	881	Detector bias heater off
End postcalibration sequence.				
11/16/88	14:21:18			Yaw maneuver to X-axis positive
Begin azimuth angle load commands for solar calibration.				
11/22/88	12:14:07	734.12	419	Address azimuth position A
	12:14:39	734.65	2xx	Data command, high byte
	12:15:43	735.72	1xx	Data command, low byte
End azimuth angle load commands (A = 68.40°).				

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
11/23/88	08:25:19	505.32	882	Detector bias heater on at level 1
	08:27:59	507.98	881	Detector bias heater off
	08:28:31	508.52	883	Detector bias heater on at level 2
	08:31:11	511.18	881	Detector bias heater off
	08:31:43	511.72	884	Detector bias heater on at level 3
	08:34:23	514.38	881	Detector bias heater off
	09:33:35	573.58	821	Elevate to internal source (stow)
	09:49:35	589.58	862	WFOV BB heater on at temp. 1
	10:05:35	605.58	872	MFOV BB heater on at temp. 1
	11:10:39	670.65	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/23/88	11:12:15	672.25	881	Detector bias heater off
	11:12:47	672.78	852	Solar port heaters off
	11:13:19	673.32	821	Elevate to internal source (stow)
	11:13:51	673.85	851	Solar port heaters on
	11:15:59	675.98	882	Detector bias heater on at level 1
	11:19:43	679.72	892	SWICS on at level 3
	11:22:55	682.92	881	Detector bias heater off
	11:26:39	686.65	862	WFOV BB heater on at temp. 1
	11:27:11	687.18	872	MFOV BB heater on at temp. 1
	11:28:15	688.25	891	SWICS off
	11:41:35	701.58	883	Detector bias heater on at level 2
	11:45:19	705.32	893	SWICS on at level 2
	11:48:31	708.52	881	Detector bias heater off
	11:52:15	712.25	863	WFOV BB heater on at temp. 2
	11:52:47	712.78	873	MFOV BB heater on at temp. 2
	11:53:51	713.85	891	SWICS off
	12:07:11	727.18	884	Detector bias heater on at level 3
	12:10:55	730.92	894	SWICS on at level 1
	12:13:03	733.05	881	Detector bias heater off
	12:15:43	735.72	852	Solar port heaters off
	12:16:47	736.78	861	WFOV BB heater off
	12:17:19	737.32	871	MFOV BB heater off
	12:17:51	737.85	851	Solar port heaters on
	12:18:23	738.38	891	SWICS off
End internal calibration sequence.				
11/23/88	12:25:19	745.32	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
11/23/88	12:32:47	752.78	822	Elevate to solar ports (Sun)
	12:33:19	753.32	814	Azimuth to position A
	12:33:51	753.85	883	Detector bias heater on at level 2
	12:43:59	763.98	831	SMA shutter cycle on

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/23/88	13:25:03	805.05	832	SMA shutter cycle off
	13:25:35	805.58	881	Detector bias heater off
	13:26:07	806.12	882	Detector bias heater on at level 1
	13:28:47	808.78	881	Detector bias heater off
	13:29:19	809.32	883	Detector bias heater on at level 2
	13:31:59	811.98	881	Detector bias heater off
	13:32:31	812.52	884	Detector bias heater on at level 3
	13:35:11	815.18	881	Detector bias heater off
	13:35:43	815.72	852	Solar port heaters off
	13:51:43	831.72	851	Solar port heaters on
	13:52:15	832.25	821	Elevate to internal source (stow)
	14:08:15	848.25	811	Azimuth to 0°
End revised solar calibration sequence.				
11/23/88	14:33:51	873.85	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/23/88	14:52:31	892.52	882	Detector bias heater on at level 1
	14:55:11	895.18	881	Detector bias heater off
	14:55:43	895.72	883	Detector bias heater on at level 2
	14:58:23	898.38	881	Detector bias heater off
	14:58:55	898.92	884	Detector bias heater on at level 3
	15:01:35	901.58	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/01/88	12:18:55	738.92	419	Address azimuth position A
	12:21:03	741.05	2xx	Data command, high byte
	12:22:07	742.12	1xx	Data command, low byte
End azimuth angle load commands ( $A = 29.48^\circ$ ).				
Begin revised preinternal calibration sequence.				
12/02/88	02:06:07	126.12	882	Detector bias heater on at level 1
	02:08:47	128.78	881	Detector bias heater off
	02:09:19	129.32	883	Detector bias heater on at level 2
	02:11:59	131.98	881	Detector bias heater off
	02:12:31	132.52	884	Detector bias heater on at level 3
	02:15:11	135.18	881	Detector bias heater off
	03:14:23	194.38	821	Elevate to internal source (stow)
	03:30:23	210.38	862	WFOV BB heater on at temp. 1
	03:46:23	226.38	872	MFOV BB heater on at temp. 1
	04:51:27	291.45	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
12/02/88	04:53:03	293.05	881	Detector bias heater off
	04:53:35	293.58	852	Solar port heaters off
	04:54:07	294.12	821	Elevate to internal source (stow)
	04:54:39	294.65	851	Solar port heaters on
	04:56:47	296.78	882	Detector bias heater on at level 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/02/88	05:00:31	300.52	892	SWICS on at level 3
	05:03:43	303.72	881	Detector bias heater off
	05:07:27	307.45	862	WFOV BB heater on at temp. 1
	05:07:59	307.98	872	MFOV BB heater on at temp. 1
	05:09:03	309.05	891	SWICS off
	05:22:23	322.38	883	Detector bias heater on at level 2
	05:26:07	326.12	893	SWICS on at level 2
	05:29:19	329.32	881	Detector bias heater off
	05:33:03	333.05	863	WFOV BB heater on at temp. 2
	05:33:35	333.58	873	MFOV BB heater on at temp. 2
	05:34:39	334.65	891	SWICS off
	05:47:59	347.98	884	Detector bias heater on at level 3
	05:51:43	351.72	894	SWICS on at level 1
	05:53:51	353.85	881	Detector bias heater off
	05:56:31	356.52	852	Solar port heaters off
	05:57:35	357.58	861	WFOV BB heater off
	05:58:07	358.12	871	MFOV BB heater off
	05:58:39	358.65	851	Solar port heaters on
	05:59:11	359.18	891	SWICS off
End internal calibration sequence.				
12/02/88	06:06:07	366.12	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
12/02/88	06:13:35	373.58	822	Elevate to solar ports (Sun)
	06:14:07	374.12	814	Azimuth to position A
	06:14:39	374.65	883	Detector bias heater on at level 2
	06:24:47	384.78	831	SMA shutter cycle on
	07:05:51	425.85	832	SMA shutter cycle off
	07:06:23	426.38	881	Detector bias heater off
	07:06:55	426.92	882	Detector bias heater on at level 1
	07:09:35	429.58	881	Detector bias heater off
	07:10:07	430.12	883	Detector bias heater on at level 2
	07:12:47	432.78	881	Detector bias heater off
	07:13:19	433.32	884	Detector bias heater on at level 3
	07:15:59	435.98	881	Detector bias heater off
	07:16:31	436.52	852	Solar port heaters off
	07:32:31	452.52	851	Solar port heaters on
	07:33:03	453.05	821	Elevate to internal source (stow)
	07:49:03	469.05	811	Azimuth to 0°
End revised solar calibration sequence.				
12/02/88	08:14:39	494.65	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/02/88	08:33:19	513.32	882	Detector bias heater on at level 1
	08:35:59	515.98	881	Detector bias heater off
	08:36:31	516.52	883	Detector bias heater on at level 2
	08:39:11	519.18	881	Detector bias heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/02/88	08:39:43	519.72	884	Detector bias heater on at level 3
	08:42:23	522.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/15/88	15:23:27	923.45	419	Address azimuth position A
	15:23:59	923.98	2xx	Data command, high byte
	15:25:03	925.05	1xx	Data command, low byte
End azimuth angle load commands ( $A = 32.18^\circ$ ).				
Begin revised preinternal calibration sequence.				
12/16/88	03:39:59	219.98	882	Detector bias heater on at level 1
	03:42:39	222.65	881	Detector bias heater off
	03:43:11	223.18	883	Detector bias heater on at level 2
	03:45:51	225.85	881	Detector bias heater off
	03:46:23	226.38	884	Detector bias heater on at level 3
	03:49:03	229.05	881	Detector bias heater off
	04:48:15	288.25	821	Elevate to internal source (stow)
	05:04:15	304.25	862	WFOV BB heater on at temp. 1
	05:20:15	320.25	872	MFOV BB heater on at temp. 1
	06:25:19	385.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
12/16/88	06:26:55	386.92	881	Detector bias heater off
	06:27:27	387.45	852	Solar port heaters off
	06:27:59	387.98	821	Elevate to internal source (stow)
	06:28:31	388.52	851	Solar port heaters on
	06:30:39	390.65	882	Detector bias heater on at level 1
	06:34:23	394.38	892	SWICS on at level 3
	06:37:35	397.58	881	Detector bias heater off
	06:41:19	401.32	862	WFOV BB heater on at temp. 1
	06:41:51	401.85	872	MFOV BB heater on at temp. 1
	06:42:55	402.92	891	SWICS off
	06:56:15	416.25	883	Detector bias heater on at level 2
	06:59:59	419.98	893	SWICS on at level 2
	07:03:11	423.18	881	Detector bias heater off
	07:06:55	426.92	863	WFOV BB heater on at temp. 2
	07:07:27	427.45	873	MFOV BB heater on at temp. 2
	07:08:31	428.52	891	SWICS off
	07:21:51	441.85	884	Detector bias heater on at level 3
	07:25:35	445.58	894	SWICS on at level 1
	07:27:43	447.72	881	Detector bias heater off
	07:30:23	450.38	852	Solar port heaters off
	07:31:27	451.45	861	WFOV BB heater off
	07:31:59	451.98	871	MFOV BB heater off

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/16/88	07:32:31	452.52	851	Solar port heaters on
	07:33:03	453.05	891	SWICS off
End internal calibration sequence.				
12/16/88	07:39:59	459.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
12/16/88	07:47:27	467.45	822	Elevate to solar ports (Sun)
	07:47:59	467.98	814	Azimuth to position A
	07:48:31	468.52	883	Detector bias heater on at level 2
	07:58:39	478.65	831	SMA shutter cycle on
	08:39:43	519.72	832	SMA shutter cycle off
	08:40:15	520.25	881	Detector bias heater off
	08:40:47	520.78	882	Detector bias heater on at level 1
	08:43:27	523.45	881	Detector bias heater off
	08:43:59	523.98	883	Detector bias heater on at level 2
	08:46:39	526.65	881	Detector bias heater off
	08:47:11	527.18	884	Detector bias heater on at level 3
	08:49:51	529.85	881	Detector bias heater off
	08:50:23	530.38	852	Solar port heaters off
	09:06:23	546.38	851	Solar port heaters on
	09:06:55	546.92	821	Elevate to internal source (stow)
	09:22:55	562.92	811	Azimuth to 0°
End revised solar calibration sequence.				
12/16/88	09:48:31	588.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/16/88	10:07:11	607.18	882	Detector bias heater on at level 1
	10:09:51	609.85	881	Detector bias heater off
	10:10:23	610.38	883	Detector bias heater on at level 2
	10:13:03	613.05	881	Detector bias heater off
	10:13:35	613.58	884	Detector bias heater on at level 3
	10:16:15	616.25	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/20/88	11:09:35	669.58	419	Address azimuth position A
	11:10:07	670.12	2xx	Data command, high byte
	11:10:39	670.65	1xx	Data command, low byte
End azimuth angle load commands (A = 55.20°).				
Begin revised preinternal calibration sequence.				
12/21/88	07:47:59	467.98	882	Detector bias heater on at level 1
	07:50:39	470.65	881	Detector bias heater off
	07:51:11	471.18	883	Detector bias heater on at level 2
	07:53:51	473.85	881	Detector bias heater off
	07:54:23	474.38	884	Detector bias heater on at level 3
	07:57:03	477.05	881	Detector bias heater off
	08:56:15	536.25	821	Elevate to internal source (stow)
	09:12:15	552.25	862	WFOV BB heater on at temp. 1

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/21/88	09:28:15	568.25	872	MFOV BB heater on at temp. 1
	10:33:19	633.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
12/21/88	10:34:55	634.92	881	Detector bias heater off
	10:35:27	635.45	852	Solar port heaters off
	10:35:59	635.98	821	Elevate to internal source (stow)
	10:36:31	636.52	851	Solar port heaters on
	10:38:39	638.65	882	Detector bias heater on at level 1
	10:42:23	642.38	892	SWICS on at level 3
	10:45:35	645.58	881	Detector bias heater off
	10:49:19	649.32	862	WFOV BB heater on at temp. 1
	10:49:51	649.85	872	MFOV BB heater on at temp. 1
	10:50:55	650.92	891	SWICS off
	11:04:15	664.25	883	Detector bias heater on at level 2
	11:07:59	667.98	893	SWICS on at level 2
	11:11:11	671.18	881	Detector bias heater off
	11:14:55	674.92	863	WFOV BB heater on at temp. 2
	11:15:27	675.45	873	MFOV BB heater on at temp. 2
	11:16:31	676.52	891	SWICS off
	11:29:51	689.85	884	Detector bias heater on at level 3
	11:33:35	693.58	894	SWICS on at level 1
	11:35:43	695.72	881	Detector bias heater off
	11:38:23	698.38	852	Solar port heaters off
	11:39:27	699.45	861	WFOV BB heater off
	11:39:59	699.98	871	MFOV BB heater off
	11:40:31	700.52	851	Solar port heaters on
	11:41:03	701.05	891	SWICS off
End internal calibration sequence.				
12/21/88	11:47:59	707.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
12/21/88	11:55:27	715.45	822	Elevate to solar ports (Sun)
	11:55:59	715.98	814	Azimuth to position A
	11:56:31	716.52	883	Detector bias heater on at level 2
	12:06:39	726.65	831	SMA shutter cycle on
	12:47:43	767.72	832	SMA shutter cycle off
	12:48:15	768.25	881	Detector bias heater off
	12:48:47	768.78	882	Detector bias heater on at level 1
	12:51:27	771.45	881	Detector bias heater off
	12:51:59	771.98	883	Detector bias heater on at level 2
	12:54:39	774.65	881	Detector bias heater off
	12:55:11	775.18	884	Detector bias heater on at level 3
	12:57:51	777.85	881	Detector bias heater off
	12:58:23	778.38	852	Solar port heaters off
	13:14:23	794.38	851	Solar port heaters on



Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/21/88	13:14:55	794.92	821	Elevate to internal source (stow)
	13:30:55	810.92	811	Azimuth to 0°
End revised solar calibration sequence.				
12/21/88	13:56:31	836.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/21/88	14:15:11	855.18	882	Detector bias heater on at level 1
	14:17:51	857.85	881	Detector bias heater off
	14:18:23	858.38	883	Detector bias heater on at level 2
	14:21:03	861.05	881	Detector bias heater off
	14:21:35	861.58	884	Detector bias heater on at level 3
	14:24:15	864.25	881	Detector bias heater off
End postcalibration sequence.				
12/28/88	16:23:10			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands.				
01/03/89	12:24:46	744.77	419	Address azimuth position A
	12:29:34	749.57	2xx	Data command, high byte
	12:30:38	750.63	1xx	Data command, low byte
End azimuth angle load commands ( $A = 70.13^\circ$ ).				
Begin azimuth angle load commands for solar calibration.				
01/04/89	16:05:35	965.58	419	Address azimuth position A
	19:41:35	1181.58	2xx	Data command, high byte
	19:42:39	1182.65	1xx	Data command, low byte
End azimuth angle load commands ( $A = 67.13^\circ$ ).				
Begin revised preinternal calibration sequence.				
01/05/89	07:33:03	453.05	882	Detector bias heater on at level 1
	07:35:43	455.72	881	Detector bias heater off
	07:36:15	456.25	883	Detector bias heater on at level 2
	07:38:55	458.92	881	Detector bias heater off
	07:39:27	459.45	884	Detector bias heater on at level 3
	07:42:07	462.12	881	Detector bias heater off
	09:12:15	552.25	821	Elevate to internal source (stow)
	09:28:15	568.25	862	WFOV BB heater on at temp. 1
	09:44:15	584.25	872	MFOV BB heater on at temp. 1
	10:49:19	649.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/05/89	10:50:55	650.92	881	Detector bias heater off
	10:51:27	651.45	852	Solar port heaters off
	10:51:59	651.98	821	Elevate to internal source (stow)
	10:52:31	652.52	851	Solar port heaters on
	10:54:39	654.65	882	Detector bias heater on at level 1
	10:58:23	658.38	892	SWICS on at level 3

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/05/89	11:01:35	661.58	881	Detector bias heater off
	11:05:19	665.32	862	WFOV BB heater on at temp. 1
	11:05:51	665.85	872	MFOV BB heater on at temp. 1
	11:06:55	666.92	891	SWICS off
	11:20:15	680.25	883	Detector bias heater on at level 2
	11:23:59	683.98	893	SWICS on at level 2
	11:27:11	687.18	881	Detector bias heater off
	11:30:55	690.92	863	WFOV BB heater on at temp. 2
	11:31:27	691.45	873	MFOV BB heater on at temp. 2
	11:32:31	692.52	891	SWICS off
	11:45:51	705.85	884	Detector bias heater on at level 3
	11:49:35	709.58	894	SWICS on at level 1
	11:51:43	711.72	881	Detector bias heater off
	11:54:23	714.38	852	Solar port heaters off
	11:55:27	715.45	861	WFOV BB heater off
	11:55:59	715.98	871	MFOV BB heater off
	11:56:31	716.52	851	Solar port heaters on
	11:57:03	717.05	891	SWICS off
End internal calibration sequence.				
01/05/89	12:03:59	723.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
01/05/89	12:11:27	731.45	822	Elevate to solar ports (Sun)
	12:11:59	731.98	814	Azimuth to position A
	12:12:31	732.52	883	Detector bias heater on at level 2
	12:22:39	742.65	831	SMA shutter cycle on
	13:03:43	783.72	832	SMA shutter cycle off
	13:04:15	784.25	881	Detector bias heater off
	13:04:47	784.78	882	Detector bias heater on at level 1
	13:07:27	787.45	881	Detector bias heater off
	13:07:59	787.98	883	Detector bias heater on at level 2
	13:10:39	790.65	881	Detector bias heater off
	13:11:11	791.18	884	Detector bias heater on at level 3
	13:13:51	793.85	881	Detector bias heater off
	13:14:23	794.38	852	Solar port heaters off
	13:30:23	810.38	851	Solar port heaters on
	13:30:55	810.92	821	Elevate to internal source (stow)
	13:46:55	826.92	811	Azimuth to 0°
End revised solar calibration sequence.				
01/05/89	14:12:31	852.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/05/89	15:36:47	936.78	882	Detector bias heater on at level 1
	15:39:27	939.45	881	Detector bias heater off
	15:39:59	939.98	883	Detector bias heater on at level 2
	15:42:39	942.65	881	Detector bias heater off
	15:43:11	943.18	884	Detector bias heater on at level 3

Table 9. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
	15:45:51	945.85	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
01/17/89	11:59:43	719.72	419	Address azimuth position A
	12:00:15	720.25	2xx	Data command, high byte
	12:01:19	721.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 62.42^\circ$ ).				
Begin revised preinternal calibration sequence.				
01/18/89	06:53:03	413.05	882	Detector bias heater on at level 1
	06:55:43	415.72	881	Detector bias heater off
	06:56:15	416.25	883	Detector bias heater on at level 2
	06:58:55	418.92	881	Detector bias heater off
	06:59:27	419.45	884	Detector bias heater on at level 3
	07:02:07	422.12	881	Detector bias heater off
	08:32:15	512.25	821	Elevate to internal source (stow)
	08:48:15	528.25	862	WFOV BB heater on at temp. 1
	09:04:15	544.25	872	MFOV BB heater on at temp. 1
	10:09:19	609.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/18/89	10:10:55	610.92	881	Detector bias heater off
	10:11:27	611.45	852	Solar port heaters off
	10:11:59	611.98	821	Elevate to internal source (stow)
	10:12:31	612.52	851	Solar port heaters on
	10:14:39	614.65	882	Detector bias heater on at level 1
	10:18:23	618.38	892	SWICS on at level 3
	10:21:35	621.58	881	Detector bias heater off
	10:25:19	625.32	862	WFOV BB heater on at temp. 1
	10:25:51	625.85	872	MFOV BB heater on at temp. 1
	10:26:55	626.92	891	SWICS off
	10:40:15	640.25	883	Detector bias heater on at level 2
	10:43:59	643.98	893	SWICS on at level 2
	10:47:11	647.18	881	Detector bias heater off
	10:50:55	650.92	863	WFOV BB heater on at temp. 2
	10:51:27	651.45	873	MFOV BB heater on at temp. 2
	10:52:31	652.52	891	SWICS off
	11:05:51	665.85	884	Detector bias heater on at level 3
	11:09:35	669.58	894	SWICS on at level 1
	11:11:43	671.72	881	Detector bias heater off
	11:14:23	674.38	852	Solar port heaters off
	11:15:27	675.45	861	WFOV BB heater off
	11:15:59	675.98	871	MFOV BB heater off
	11:16:31	676.52	851	Solar port heaters on
	11:17:03	677.05	891	SWICS off
End internal calibration sequence.				

Table 9. Continued

(b) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/18/89	11:23:59	683.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
01/18/89	11:31:27	691.45	822	Elevate to solar ports (Sun)
	11:31:59	691.98	814	Azimuth to position A
	11:32:31	692.52	883	Detector bias heater on at level 2
	11:42:39	702.65	831	SMA shutter cycle on
	12:23:43	743.72	832	SMA shutter cycle off
	12:24:15	744.25	881	Detector bias heater off
	12:24:47	744.78	882	Detector bias heater on at level 1
	12:27:27	747.45	881	Detector bias heater off
	12:27:59	747.98	883	Detector bias heater on at level 2
	12:30:39	750.65	881	Detector bias heater off
	12:31:11	751.18	884	Detector bias heater on at level 3
	12:33:51	753.85	881	Detector bias heater off
	12:34:23	754.38	852	Solar port heaters off
	12:50:23	770.38	851	Solar port heaters on
	12:50:55	770.92	821	Elevate to internal source (stow)
	13:06:55	786.92	811	Azimuth to 0°
End revised solar calibration sequence.				
01/18/89	13:32:31	812.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/18/89	14:56:47	896.78	882	Detector bias heater on at level 1
	14:59:27	899.45	881	Detector bias heater off
	14:59:59	899.98	883	Detector bias heater on at level 2
	15:02:39	902.65	881	Detector bias heater off
	15:03:11	903.18	884	Detector bias heater on at level 3
	15:05:51	905.85	881	Detector bias heater off
End postcalibration sequence.				
01/26/89	13:50:06			Yaw maneuver to $X$ -axis positive
Begin azimuth angle load commands for solar calibration.				
01/31/89	14:47:43	887.72	419	Address azimuth position A
	14:48:47	888.78	2xx	Data command, high byte
	14:49:51	889.85	1xx	Data command, low byte
End azimuth angle load commands ( $A = 76.43^\circ$ ).				

Table 9. Continued

(c) February 1989 through February 1990

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
02/01/89	07:44:15	464.25	882	Detector bias heater on at level 1
	07:46:55	466.92	881	Detector bias heater off
	07:47:27	467.45	883	Detector bias heater on at level 2
	07:50:07	470.12	881	Detector bias heater off
	07:50:39	470.65	884	Detector bias heater on at level 3
	07:53:19	473.32	881	Detector bias heater off
	08:52:31	532.52	821	Elevate to internal source (stow)
	09:08:31	548.52	862	WFOV BB heater on at temp. 1
	09:24:31	564.52	872	MFOV BB heater on at temp. 1
	10:29:35	629.58	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/01/89	10:31:11	631.18	881	Detector bias heater off
	10:31:43	631.72	852	Solar port heaters off
	10:32:15	632.25	821	Elevate to internal source (stow)
	10:32:47	632.78	851	Solar port heaters on
	10:34:55	634.92	882	Detector bias heater on at level 1
	10:38:39	638.65	892	SWICS on at level 3
	10:41:51	641.85	881	Detector bias heater off
	10:45:35	645.58	862	WFOV BB heater on at temp. 1
	10:46:07	646.12	872	MFOV BB heater on at temp. 1
	10:47:11	647.18	891	SWICS off
	11:00:31	660.52	883	Detector bias heater on at level 2
	11:04:15	664.25	893	SWICS on at level 2
	11:07:27	667.45	881	Detector bias heater off
	11:11:11	671.18	863	WFOV BB heater on at temp. 2
	11:11:43	671.72	873	MFOV BB heater on at temp. 2
	11:12:47	672.78	891	SWICS off
	11:26:07	686.12	884	Detector bias heater on at level 3
	11:29:51	689.85	894	SWICS on at level 1
	11:31:59	691.98	881	Detector bias heater off
	11:34:39	694.65	852	Solar port heaters off
	11:35:43	695.72	861	WFOV BB heater off
	11:36:15	696.25	871	MFOV BB heater off
	11:36:47	696.78	851	Solar port heaters on
	11:37:19	697.32	891	SWICS off
End internal calibration sequence.				
02/01/89	11:44:15	704.25	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
02/01/89	11:51:43	711.72	822	Elevate to solar ports (Sun)
	11:52:15	712.25	814	Azimuth to position A
	11:52:47	712.78	883	Detector bias heater on at level 2
	12:02:55	722.92	831	SMA shutter cycle on
	12:43:59	763.98	832	SMA shutter cycle off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/01/89	12:44:31	764.52	881	Detector bias heater off
	12:45:03	765.05	882	Detector bias heater on at level 1
	12:47:43	767.72	881	Detector bias heater off
	12:48:15	768.25	883	Detector bias heater on at level 2
	12:50:55	770.92	881	Detector bias heater off
	12:51:27	771.45	884	Detector bias heater on at level 3
	12:54:07	774.12	881	Detector bias heater off
	12:54:39	774.65	852	Solar port heaters off
	13:10:39	790.65	851	Solar port heaters on
	13:11:11	791.18	821	Elevate to internal source (stow)
	13:27:11	807.18	811	Azimuth to 0°
End revised solar calibration sequence.				
02/01/89	13:52:47	832.78	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/01/89	14:11:27	851.45	882	Detector bias heater on at level 1
	14:14:07	854.12	881	Detector bias heater off
	14:14:39	854.65	883	Detector bias heater on at level 2
	14:17:19	857.32	881	Detector bias heater off
	14:17:51	857.85	884	Detector bias heater on at level 3
	14:20:31	860.52	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/11/89	15:21:19	921.32	419	Address azimuth position A
	15:21:51	921.85	2xx	Data command, high byte
	15:22:55	922.92	1xx	Data command, low byte
End azimuth angle load commands ( $A = 32.70^\circ$ ).				
Begin revised preinternal calibration sequence.				
02/12/89	01:46:55	106.92	882	Detector bias heater on at level 1
	01:49:35	109.58	881	Detector bias heater off
	01:50:07	110.12	883	Detector bias heater on at level 2
	01:52:47	112.78	881	Detector bias heater off
	01:53:19	113.32	884	Detector bias heater on at level 3
	01:55:59	115.98	881	Detector bias heater off
	02:55:11	175.18	821	Elevate to internal source (stow)
	03:11:11	191.18	862	WFOV BB heater on at temp. 1
	03:27:11	207.18	872	MFOV BB heater on at temp. 1
	04:32:15	272.25	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/12/89	04:33:51	273.85	881	Detector bias heater off
	04:34:23	274.38	852	Solar port heaters off
	04:34:55	274.92	821	Elevate to internal source (stow)
	04:35:27	275.45	851	Solar port heaters on
	04:37:35	277.58	882	Detector bias heater on at level 1
	04:41:19	281.32	892	SWICS on at level 3

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/12/89	04:44:31	284.52	881	Detector bias heater off
	04:48:15	288.25	862	WFOV BB heater on at temp. 1
	04:48:47	288.78	872	MFOV BB heater on at temp. 1
	04:49:51	289.85	891	SWICS off
	05:03:11	303.18	883	Detector bias heater on at level 2
	05:06:55	306.92	893	SWICS on at level 2
	05:10:07	310.12	881	Detector bias heater off
	05:13:51	313.85	863	WFOV BB heater on at temp. 2
	05:14:23	314.38	873	MFOV BB heater on at temp. 2
	05:15:27	315.45	891	SWICS off
	05:28:47	328.78	884	Detector bias heater on at level 3
	05:32:31	332.52	894	SWICS on at level 1
	05:34:39	334.65	881	Detector bias heater off
	05:37:19	337.32	852	Solar port heaters off
	05:38:23	338.38	861	WFOV BB heater off
	05:38:55	338.92	871	MFOV BB heater off
	05:39:27	339.45	851	Solar port heaters on
	05:39:59	339.98	891	SWICS off
End internal calibration sequence.				
02/12/89	05:46:55	346.92	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
02/12/89	05:54:23	354.38	822	Elevate to solar ports (Sun)
	05:54:55	354.92	814	Azimuth to position A
	05:55:27	355.45	883	Detector bias heater on at level 2
	06:05:35	365.58	831	SMA shutter cycle on
	06:46:39	406.65	832	SMA shutter cycle off
	06:47:11	407.18	881	Detector bias heater off
	06:47:43	407.72	882	Detector bias heater on at level 1
	06:50:23	410.38	881	Detector bias heater off
	06:50:55	410.92	883	Detector bias heater on at level 2
	06:53:35	413.58	881	Detector bias heater off
	06:54:07	414.12	884	Detector bias heater on at level 3
	06:56:47	416.78	881	Detector bias heater off
	06:57:19	417.32	852	Solar port heaters off
	07:13:19	433.32	851	Solar port heaters on
	07:13:51	433.85	821	Elevate to internal source (stow)
	07:29:51	449.85	811	Azimuth to 0°
End revised solar calibration sequence.				
02/12/89	07:55:27	475.45	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/12/89	08:14:07	494.12	882	Detector bias heater on at level 1
	08:16:47	496.78	881	Detector bias heater off
	08:17:19	497.32	883	Detector bias heater on at level 2
	08:19:59	499.98	881	Detector bias heater off
	08:20:31	500.52	884	Detector bias heater on at level 3

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/12/89	08:23:11	503.18	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/23/89	17:14:23	1034.38	419	Address azimuth position A
	17:14:55	1034.92	2xx	Data command, high byte
	17:15:59	1035.98	1xx	Data command, low byte
End azimuth angle load commands ( $A = 32.47^\circ$ ).				
Begin revised preinternal calibration sequence.				
02/24/89	01:07:59	67.98	882	Detector bias heater on at level 1
	01:10:39	70.65	881	Detector bias heater off
	01:11:11	71.18	883	Detector bias heater on at level 2
	01:13:51	73.85	881	Detector bias heater off
	01:14:23	74.38	884	Detector bias heater on at level 3
	01:17:03	77.05	881	Detector bias heater off
	02:16:15	136.25	821	Elevate to internal source (stow)
	02:32:15	152.25	862	WFOV BB heater on at temp. 1
	02:48:15	168.25	872	MFOV BB heater on at temp. 1
	03:53:19	233.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/24/89	03:54:55	234.92	881	Detector bias heater off
	03:55:27	235.45	852	Solar port heaters off
	03:55:59	235.98	821	Elevate to internal source (stow)
	03:56:31	236.52	851	Solar port heaters on
	03:58:39	238.65	882	Detector bias heater on at level 1
	04:02:23	242.38	892	SWICS on at level 3
	04:05:35	245.58	881	Detector bias heater off
	04:09:19	249.32	862	WFOV BB heater on at temp. 1
	04:09:51	249.85	872	MFOV BB heater on at temp. 1
	04:10:55	250.92	891	SWICS off
	04:24:15	264.25	883	Detector bias heater on at level 2
	04:27:59	267.98	893	SWICS on at level 2
	04:31:11	271.18	881	Detector bias heater off
	04:34:55	274.92	863	WFOV BB heater on at temp. 2
	04:35:27	275.45	873	MFOV BB heater on at temp. 2
	04:36:31	276.52	891	SWICS off
	04:49:51	289.85	884	Detector bias heater on at level 3
	04:53:35	293.58	894	SWICS on at level 1
	04:55:43	295.72	881	Detector bias heater off
	04:58:23	298.38	852	Solar port heaters off
	04:59:27	299.45	861	WFOV BB heater off
	04:59:59	299.98	871	MFOV BB heater off
	05:00:31	300.52	851	Solar port heaters on
	05:01:03	301.05	891	SWICS off
End internal calibration sequence.				



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/24/89	05:07:59	307.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
02/24/89	05:15:27	315.45	822	Elevate to solar ports (Sun)
	05:15:59	315.98	814	Azimuth to position A
	05:16:31	316.52	883	Detector bias heater on at level 2
	05:26:39	326.65	831	SMA shutter cycle on
	06:07:43	367.72	832	SMA shutter cycle off
	06:08:15	368.25	881	Detector bias heater off
	06:08:47	368.78	882	Detector bias heater on at level 1
	06:11:27	371.45	881	Detector bias heater off
	06:11:59	371.98	883	Detector bias heater on at level 2
	06:14:39	374.65	881	Detector bias heater off
	06:15:11	375.18	884	Detector bias heater on at level 3
	06:17:51	377.85	881	Detector bias heater off
	06:18:23	378.38	852	Solar port heaters off
	06:34:23	394.38	851	Solar port heaters on
	06:34:55	394.92	821	Elevate to internal source (stow)
	06:50:55	410.92	811	Azimuth to 0°
End revised solar calibration sequence.				
02/24/89	07:16:31	436.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/24/89	07:35:11	455.18	882	Detector bias heater on at level 1
	07:37:51	457.85	881	Detector bias heater off
	07:38:23	458.38	883	Detector bias heater on at level 2
	07:41:03	461.05	881	Detector bias heater off
	07:41:35	461.58	884	Detector bias heater on at level 3
	07:44:15	464.25	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/28/89	18:15:11	1095.18	419	Address azimuth position A
	18:15:43	1095.72	2xx	Data command, high byte
	18:16:47	1096.78	1xx	Data command, low byte
End azimuth angle load commands ( $A = 54.53^\circ$ ).				
Begin revised preinternal calibration sequence.				
03/01/89	08:29:35	509.58	882	Detector bias heater on at level 1
	08:32:15	512.25	881	Detector bias heater off
	08:32:47	512.78	883	Detector bias heater on at level 2
	08:35:27	515.45	881	Detector bias heater off
	08:35:59	515.98	884	Detector bias heater on at level 3
	08:38:39	518.65	881	Detector bias heater off
	09:37:51	577.85	821	Elevate to internal source (stow)
	09:53:51	593.85	862	WFOV BB heater on at temp. 1
	10:09:51	609.85	872	MFOV BB heater on at temp. 1
	11:14:55	674.92	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
03/01/89	11:16:31	676.52	881	Detector bias heater off
	11:17:03	677.05	852	Solar port heaters off
	11:17:35	677.58	821	Elevate to internal source (stow)
	11:18:07	678.12	851	Solar port heaters on
	11:20:15	680.25	882	Detector bias heater on at level 1
	11:23:59	683.98	892	SWICS on at level 3
	11:27:11	687.18	881	Detector bias heater off
	11:30:55	690.92	862	WFOV BB heater on at temp. 1
	11:31:27	691.45	872	MFOV BB heater on at temp. 1
	11:32:31	692.52	891	SWICS off
	11:45:51	705.85	883	Detector bias heater on at level 2
	11:49:35	709.58	893	SWICS on at level 2
	11:52:47	712.78	881	Detector bias heater off
	11:56:31	716.52	863	WFOV BB heater on at temp. 2
	11:57:03	717.05	873	MFOV BB heater on at temp. 2
	11:58:07	718.12	891	SWICS off
	12:11:27	731.45	884	Detector bias heater on at level 3
	12:15:11	735.18	894	SWICS on at level 1
	12:17:19	737.32	881	Detector bias heater off
	12:19:59	739.98	852	Solar port heaters off
	12:21:03	741.05	861	WFOV BB heater off
	12:21:35	741.58	871	MFOV BB heater off
	12:22:07	742.12	851	Solar port heaters on
	12:22:39	742.65	891	SWICS off
End internal calibration sequence.				
03/01/89	12:29:35	749.58	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
03/01/89	12:37:03	757.05	822	Elevate to solar ports (Sun)
	12:37:35	757.58	814	Azimuth to position A
	12:38:07	758.12	883	Detector bias heater on at level 2
	12:48:15	768.25	831	SMA shutter cycle on
	13:29:19	809.32	832	SMA shutter cycle off
	13:29:51	809.85	881	Detector bias heater off
	13:30:23	810.38	882	Detector bias heater on at level 1
	13:33:03	813.05	881	Detector bias heater off
	13:33:35	813.58	883	Detector bias heater on at level 2
	13:36:15	816.25	881	Detector bias heater off
	13:36:47	816.78	884	Detector bias heater on at level 3
	13:39:27	819.45	881	Detector bias heater off
	13:39:59	819.98	852	Solar port heaters off
	13:55:59	835.98	851	Solar port heaters on
	13:56:31	836.52	821	Elevate to internal source (stow)
	14:12:31	852.52	811	Azimuth to 0°
End revised solar calibration sequence.				

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/01/89	14:38:07	878.12	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/01/89	14:56:47	896.78	882	Detector bias heater on at level 1
	14:59:27	899.45	881	Detector bias heater off
	14:59:59	899.98	883	Detector bias heater on at level 2
	15:02:39	902.65	881	Detector bias heater off
	15:03:11	903.18	884	Detector bias heater on at level 3
	15:05:51	905.85	881	Detector bias heater off
End postcalibration sequence.				
03/07/89	15:10:06			Yaw maneuver to $X$ -axis negative
Begin revised preinternal calibration sequence.				
03/15/89	07:58:07	478.12	882	Detector bias heater on at level 1
	08:00:47	480.78	881	Detector bias heater off
	08:01:19	481.32	883	Detector bias heater on at level 2
	08:03:59	483.98	881	Detector bias heater off
	08:04:31	484.52	884	Detector bias heater on at level 3
	08:07:11	487.18	881	Detector bias heater off
	09:36:47	576.78	821	Elevate to internal source (stow)
	09:52:47	592.78	862	WFOV BB heater on at temp. 1
	10:08:47	608.78	872	MFOV BB heater on at temp. 1
	11:13:51	673.85	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
03/15/89	11:15:27	675.45	881	Detector bias heater off
	11:15:59	675.98	852	Solar port heaters off
	11:16:31	676.52	821	Elevate to internal source (stow)
	11:17:03	677.05	851	Solar port heaters on
	11:19:11	679.18	882	Detector bias heater on at level 1
	11:22:55	682.92	892	SWICS on at level 3
	11:26:07	686.12	881	Detector bias heater off
	11:29:51	689.85	862	WFOV BB heater on at temp. 1
	11:30:23	690.38	872	MFOV BB heater on at temp. 1
	11:31:27	691.45	891	SWICS off
	11:44:47	704.78	883	Detector bias heater on at level 2
	11:48:31	708.52	893	SWICS on at level 2
	11:51:43	711.72	881	Detector bias heater off
	11:55:27	715.45	863	WFOV BB heater on at temp. 2
	11:55:59	715.98	873	MFOV BB heater on at temp. 2
	11:57:03	717.05	891	SWICS off
	12:10:23	730.38	884	Detector bias heater on at level 3
	12:14:07	734.12	894	SWICS on at level 1
	12:16:15	736.25	881	Detector bias heater off
	12:18:55	738.92	852	Solar port heaters off
	12:19:59	739.98	861	WFOV BB heater off
	12:20:31	740.52	871	MFOV BB heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/15/89	12:21:03	741.05	851	Solar port heaters on
	12:21:35	741.58	891	SWICS off
End internal calibration sequence.				
03/15/89	12:28:31	748.52	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
03/15/89	12:35:59	755.98	822	Elevate to solar ports (Sun)
	12:36:31	756.52	814	Azimuth to position A
	12:37:03	757.05	883	Detector bias heater on at level 2
	12:47:11	767.18	831	SMA shutter cycle on
	13:28:15	808.25	832	SMA shutter cycle off
	13:28:47	808.78	881	Detector bias heater off
	13:29:19	809.32	882	Detector bias heater on at level 1
	13:31:59	811.98	881	Detector bias heater off
	13:32:31	812.52	883	Detector bias heater on at level 2
	13:35:11	815.18	881	Detector bias heater off
	13:35:43	815.72	884	Detector bias heater on at level 3
	13:38:23	818.38	881	Detector bias heater off
	13:38:55	818.92	852	Solar port heaters off
	13:54:55	834.92	851	Solar port heaters on
	13:55:27	835.45	821	Elevate to internal source (stow)
	14:11:27	851.45	811	Azimuth to 0°
End revised solar calibration sequence.				
Unsuccessful solar calibration; new azimuth angle data not sent.				
03/15/89	14:37:03	877.05	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/15/89	16:01:19	961.32	882	Detector bias heater on at level 1
	16:03:59	963.98	881	Detector bias heater off
	16:04:31	964.52	883	Detector bias heater on at level 2
	16:07:11	967.18	881	Detector bias heater off
	16:07:43	967.72	884	Detector bias heater on at level 3
	16:10:23	970.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/22/89	00:19:59	19.98	419	Address azimuth position A
	00:20:31	20.52	2xx	Data command, high byte
	00:21:03	21.05	1xx	Data command, low byte
End azimuth angle load commands ( $A = 37.88^\circ$ ).				
Begin revised preinternal calibration sequence.				
03/22/89	07:38:23	458.38	882	Detector bias heater on at level 1
	07:41:03	461.05	881	Detector bias heater off
	07:41:35	461.58	883	Detector bias heater on at level 2
	07:44:15	464.25	881	Detector bias heater off
	07:44:47	464.78	884	Detector bias heater on at level 3
	07:47:27	467.45	881	Detector bias heater off
	09:17:03	557.05	821	Elevate to internal source (stow)

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/22/89	09:33:03	573.05	862	WFOV BB heater on at temp. 1
	09:49:03	589.05	872	MFOV BB heater on at temp. 1
	10:54:07	654.12	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
03/22/89	10:55:43	655.72	881	Detector bias heater off
	10:56:15	656.25	852	Solar port heaters off
	10:56:47	656.78	821	Elevate to internal source (stow)
	10:57:19	657.32	851	Solar port heaters on
	10:59:27	659.45	882	Detector bias heater on at level 1
	11:03:11	663.18	892	SWICS on at level 3
	11:06:23	666.38	881	Detector bias heater off
	11:10:07	670.12	862	WFOV BB heater on at temp. 1
	11:10:39	670.65	872	MFOV BB heater on at temp. 1
	11:11:43	671.72	891	SWICS off
	11:25:03	685.05	883	Detector bias heater on at level 2
	11:28:47	688.78	893	SWICS on at level 2
	11:31:59	691.98	881	Detector bias heater off
	11:35:43	695.72	863	WFOV BB heater on at temp. 2
	11:36:15	696.25	873	MFOV BB heater on at temp. 2
	11:37:19	697.32	891	SWICS off
	11:50:39	710.65	884	Detector bias heater on at level 3
	11:54:23	714.38	894	SWICS on at level 1
	11:56:31	716.52	881	Detector bias heater off
	11:59:11	719.18	852	Solar port heaters off
	12:00:15	720.25	861	WFOV BB heater off
	12:00:47	720.78	871	MFOV BB heater off
	12:01:19	721.32	851	Solar port heaters on
	12:01:51	721.85	891	SWICS off
End internal calibration sequence.				
03/22/89	12:08:47	728.78	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
03/22/89	12:16:15	736.25	822	Elevate to solar ports (Sun)
	12:16:47	736.78	814	Azimuth to position A
	12:17:19	737.32	883	Detector bias heater on at level 2
	12:27:27	747.45	831	SMA shutter cycle on
	13:08:31	788.52	832	SMA shutter cycle off
	13:09:03	789.05	881	Detector bias heater off
	13:09:35	789.58	882	Detector bias heater on at level 1
	13:12:15	792.25	881	Detector bias heater off
	13:12:47	792.78	883	Detector bias heater on at level 2
	13:15:27	795.45	881	Detector bias heater off
	13:15:59	795.98	884	Detector bias heater on at level 3
	13:18:39	798.65	881	Detector bias heater off
	13:19:11	799.18	852	Solar port heaters off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/22/89	13:35:11	815.18	851	Solar port heaters on
	13:35:43	815.72	821	Elevate to internal source (stow)
	13:51:43	831.72	811	Azimuth to 0°
End revised solar calibration sequence.				
03/22/89	14:17:19	857.32	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/22/89	15:41:35	941.58	882	Detector bias heater on at level 1
	15:44:15	944.25	881	Detector bias heater off
	15:44:47	944.78	883	Detector bias heater on at level 2
	15:47:27	947.45	881	Detector bias heater off
	15:47:59	947.98	884	Detector bias heater on at level 3
	15:50:39	950.65	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/28/89	12:00:15	720.25	419	Address azimuth position A
	12:02:23	722.38	2xx	Data command, high byte
	12:03:27	723.45	1xx	Data command, low byte
End azimuth angle load commands ( $A = 28.73^\circ$ ).				
Begin revised preinternal calibration sequence.				
03/29/89	07:26:07	446.12	882	Detector bias heater on at level 1
	07:28:47	448.78	881	Detector bias heater off
	07:29:19	449.32	883	Detector bias heater on at level 2
	07:31:59	451.98	881	Detector bias heater off
	07:32:31	452.52	884	Detector bias heater on at level 3
	07:35:11	455.18	881	Detector bias heater off
	09:05:19	545.32	821	Elevate to internal source (stow)
	09:21:19	561.32	862	WFOV BB heater on at temp. 1
	09:37:19	577.32	872	MFOV BB heater on at temp. 1
	10:42:23	642.38	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
03/29/89	10:43:59	643.98	881	Detector bias heater off
	10:44:31	644.52	852	Solar port heaters off
	10:45:03	645.05	821	Elevate to internal source (stow)
	10:45:35	645.58	851	Solar port heaters on
	10:47:43	647.72	882	Detector bias heater on at level 1
	10:51:27	651.45	892	SWICS on at level 3
	10:54:39	654.65	881	Detector bias heater off
	10:58:23	658.38	862	WFOV BB heater on at temp. 1
	10:58:55	658.92	872	MFOV BB heater on at temp. 1
	10:59:59	659.98	891	SWICS off
	11:13:19	673.32	883	Detector bias heater on at level 2
	11:17:03	677.05	893	SWICS on at level 2
	11:20:15	680.25	881	Detector bias heater off
	11:23:59	683.98	863	WFOV BB heater on at temp. 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/29/89	11:24:31	684.52	873	MFOV BB heater on at temp. 2
	11:25:35	685.58	891	SWICS off
	11:38:55	698.92	884	Detector bias heater on at level 3
	11:42:39	702.65	894	SWICS on at level 1
	11:44:47	704.78	881	Detector bias heater off
	11:47:27	707.45	852	Solar port heaters off
	11:48:31	708.52	861	WFOV BB heater off
	11:49:03	709.05	871	MFOV BB heater off
	11:49:35	709.58	851	Solar port heaters on
	11:50:07	710.12	891	SWICS off
End internal calibration sequence.				
03/29/89	11:57:03	717.05	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
03/29/89	12:04:31	724.52	822	Elevate to solar ports (Sun)
	12:05:03	725.05	814	Azimuth to position A
	12:05:35	725.58	883	Detector bias heater on at level 2
	12:15:43	735.72	831	SMA shutter cycle on
	12:56:47	776.78	832	SMA shutter cycle off
	12:57:19	777.32	881	Detector bias heater off
	12:57:51	777.85	882	Detector bias heater on at level 1
	13:00:31	780.52	881	Detector bias heater off
	13:01:03	781.05	883	Detector bias heater on at level 2
	13:03:43	783.72	881	Detector bias heater off
	13:04:15	784.25	884	Detector bias heater on at level 3
	13:06:55	786.92	881	Detector bias heater off
	13:07:27	787.45	852	Solar port heaters off
	13:23:27	803.45	851	Solar port heaters on
	13:23:59	803.98	821	Elevate to internal source (stow)
	13:39:59	819.98	811	Azimuth to 0°
End revised solar calibration sequence.				
03/29/89	14:05:35	845.58	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/29/89	15:29:51	929.85	882	Detector bias heater on at level 1
	15:32:31	932.52	881	Detector bias heater off
	15:33:03	933.05	883	Detector bias heater on at level 2
	15:35:43	935.72	881	Detector bias heater off
	15:36:15	936.25	884	Detector bias heater on at level 3
	15:38:55	938.92	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
04/11/89	11:15:27	675.45	419	Address azimuth position A
	11:15:59	675.98	2xx	Data command, high byte
	11:17:03	677.05	1xx	Data command, low byte
End azimuth angle load commands (A = 74.78°).				

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
04/12/89	06:55:11	415.18	882	Detector bias heater on at level 1
	06:57:51	417.85	881	Detector bias heater off
	06:58:23	418.38	883	Detector bias heater on at level 2
	07:01:03	421.05	881	Detector bias heater off
	07:01:35	421.58	884	Detector bias heater on at level 3
	07:04:15	424.25	881	Detector bias heater off
	08:33:51	513.85	821	Elevate to internal source (stow)
	08:49:51	529.85	862	WFOV BB heater on at temp. 1
	09:05:51	545.85	872	MFOV BB heater on at temp. 1
10:10:55	610.92	823	Elevate to nadir (Earth)	
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
04/12/89	10:12:31	612.52	881	Detector bias heater off
	10:13:03	613.05	852	Solar port heaters off
	10:13:35	613.58	821	Elevate to internal source (stow)
	10:14:07	614.12	851	Solar port heaters on
	10:16:15	616.25	882	Detector bias heater on at level 1
	10:19:59	619.98	892	SWICS on at level 3
	10:23:11	623.18	881	Detector bias heater off
	10:26:55	626.92	862	WFOV BB heater on at temp. 1
	10:27:27	627.45	872	MFOV BB heater on at temp. 1
	10:28:31	628.52	891	SWICS off
	10:41:51	641.85	883	Detector bias heater on at level 2
	10:45:35	645.58	893	SWICS on at level 2
	10:48:47	648.78	881	Detector bias heater off
	10:52:31	652.52	863	WFOV BB heater on at temp. 2
	10:53:03	653.05	873	MFOV BB heater on at temp. 2
	10:54:07	654.12	891	SWICS off
	11:07:27	667.45	884	Detector bias heater on at level 3
	11:11:11	671.18	894	SWICS on at level 1
	11:13:19	673.32	881	Detector bias heater off
	11:15:59	675.98	852	Solar port heaters off
	11:17:03	677.05	861	WFOV BB heater off
	11:17:35	677.58	871	MFOV BB heater off
	11:18:07	678.12	851	Solar port heaters on
	11:18:39	678.65	891	SWICS off
End internal calibration sequence.				
04/12/89	11:25:35	685.58	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
04/12/89	11:33:03	693.05	822	Elevate to solar ports (Sun)
	11:33:35	693.58	814	Azimuth to position A
	11:34:07	694.12	883	Detector bias heater on at level 2
	11:44:15	704.25	831	SMA shutter cycle on
	12:25:19	745.32	832	SMA shutter cycle off



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/12/89	12:25:51	745.85	881	Detector bias heater off
	12:26:23	746.38	882	Detector bias heater on at level 1
	12:29:03	749.05	881	Detector bias heater off
	12:29:35	749.58	883	Detector bias heater on at level 2
	12:32:15	752.25	881	Detector bias heater off
	12:32:47	752.78	884	Detector bias heater on at level 3
	12:35:27	755.45	881	Detector bias heater off
	12:35:59	755.98	852	Solar port heaters off
	12:51:59	771.98	851	Solar port heaters on
	12:52:31	772.52	821	Elevate to internal source (stow)
	13:08:31	788.52	811	Azimuth to 0°
End revised solar calibration sequence.				
04/12/89	13:34:07	814.12	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
04/12/89	14:58:23	898.38	882	Detector bias heater on at level 1
	15:01:03	901.05	881	Detector bias heater off
	15:01:35	901.58	883	Detector bias heater on at level 2
	15:04:15	904.25	881	Detector bias heater off
	15:04:47	904.78	884	Detector bias heater on at level 3
	15:07:27	907.45	881	Detector bias heater off
End postcalibration sequence.				
04/14/89	16:04:14			Yaw maneuver to $X$ -axis positive
Begin azimuth angle load commands for solar calibration.				
04/25/89	19:17:35	1157.58	419	Address azimuth position A
	19:18:07	1158.12	2xx	Data command, high byte
	19:19:11	1159.18	1xx	Data command, low byte
End azimuth angle load commands ( $A = 55.73^\circ$ ).				
Begin revised preinternal calibration sequence.				
04/26/89	07:39:59	459.98	882	Detector bias heater on at level 1
	07:42:39	462.65	881	Detector bias heater off
	07:43:11	463.18	883	Detector bias heater on at level 2
	07:45:51	465.85	881	Detector bias heater off
	07:46:23	466.38	884	Detector bias heater on at level 3
	07:49:03	469.05	881	Detector bias heater off
	08:48:15	528.25	821	Elevate to internal source (stow)
	09:04:15	544.25	862	WFOV BB heater on at temp. 1
	09:20:15	560.25	872	MFOV BB heater on at temp. 1
	10:25:19	625.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
04/26/89	10:26:55	626.92	881	Detector bias heater off
	10:27:27	627.45	852	Solar port heaters off
	10:27:59	627.98	821	Elevate to internal source (stow)
	10:28:31	628.52	851	Solar port heaters on
	10:30:39	630.65	882	Detector bias heater on at level 1

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/26/89	10:34:23	634.38	892	SWICS on at level 3
	10:37:35	637.58	881	Detector bias heater off
	10:41:19	641.32	862	WFOV BB heater on at temp. 1
	10:41:51	641.85	872	MFOV BB heater on at temp. 1
	10:42:55	642.92	891	SWICS off
	10:56:15	656.25	883	Detector bias heater on at level 2
	10:59:59	659.98	893	SWICS on at level 2
	11:03:11	663.18	881	Detector bias heater off
	11:06:55	666.92	863	WFOV BB heater on at temp. 2
	11:07:27	667.45	873	MFOV BB heater on at temp. 2
	11:08:31	668.52	891	SWICS off
	11:21:51	681.85	884	Detector bias heater on at level 3
	11:25:35	685.58	894	SWICS on at level 1
	11:27:43	687.72	881	Detector bias heater off
	11:30:23	690.38	852	Solar port heaters off
	11:31:27	691.45	861	WFOV BB heater off
	11:31:59	691.98	871	MFOV BB heater off
	11:32:31	692.52	851	Solar port heaters on
	11:33:03	693.05	891	SWICS off
End internal calibration sequence.				
04/26/89	11:39:59	699.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
04/26/89	11:47:27	707.45	822	Elevate to solar ports (Sun)
	11:47:59	707.98	814	Azimuth to position A
	11:48:31	708.52	883	Detector bias heater on at level 2
	11:58:39	718.65	831	SMA shutter cycle on
	12:39:43	759.72	832	SMA shutter cycle off
	12:40:15	760.25	881	Detector bias heater off
	12:40:47	760.78	882	Detector bias heater on at level 1
	12:43:27	763.45	881	Detector bias heater off
	12:43:59	763.98	883	Detector bias heater on at level 2
	12:46:39	766.65	881	Detector bias heater off
	12:47:11	767.18	884	Detector bias heater on at level 3
	12:49:51	769.85	881	Detector bias heater off
	12:50:23	770.38	852	Solar port heaters off
	13:06:23	786.38	851	Solar port heaters on
	13:06:55	786.92	821	Elevate to internal source (stow)
	13:22:55	802.92	811	Azimuth to 0°
End revised solar calibration sequence.				
04/26/89	13:48:31	828.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
04/26/89	14:07:11	847.18	882	Detector bias heater on at level 1
	14:09:51	849.85	881	Detector bias heater off
	14:10:23	850.38	883	Detector bias heater on at level 2
	14:13:03	853.05	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/26/89	14:13:35	853.58	884	Detector bias heater on at level 3
	14:16:15	856.25	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
05/09/89	15:15:27	915.45	419	Address azimuth position A
	15:15:59	915.98	2xx	Data command, high byte
	15:17:03	917.05	1xx	Data command, low byte
End azimuth angle load commands ( $A = 60.08^\circ$ ).				
Begin revised preinternal calibration sequence.				
05/10/89	07:05:51	425.85	882	Detector bias heater on at level 1
	07:08:31	428.52	881	Detector bias heater off
	07:09:03	429.05	883	Detector bias heater on at level 2
	07:11:43	431.72	881	Detector bias heater off
	07:12:15	432.25	884	Detector bias heater on at level 3
	07:14:55	434.92	881	Detector bias heater off
	08:14:07	494.12	821	Elevate to internal source (stow)
	08:30:07	510.12	862	WFOV BB heater on at temp. 1
	08:46:07	526.12	872	MFOV BB heater on at temp. 1
	09:51:11	591.18	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/10/89	09:52:47	592.78	881	Detector bias heater off
	09:53:19	593.32	852	Solar port heaters off
	09:53:51	593.85	821	Elevate to internal source (stow)
	09:54:23	594.38	851	Solar port heaters on
	09:56:31	596.52	882	Detector bias heater on at level 1
	10:00:15	600.25	892	SWICS on at level 3
	10:03:27	603.45	881	Detector bias heater off
	10:07:11	607.18	862	WFOV BB heater on at temp. 1
	10:07:43	607.72	872	MFOV BB heater on at temp. 1
	10:08:47	608.78	891	SWICS off
	10:22:07	622.12	883	Detector bias heater on at level 2
	10:25:51	625.85	893	SWICS on at level 2
	10:29:03	629.05	881	Detector bias heater off
	10:32:47	632.78	863	WFOV BB heater on at temp. 2
	10:33:19	633.32	873	MFOV BB heater on at temp. 2
	10:34:23	634.38	891	SWICS off
	10:47:43	647.72	884	Detector bias heater on at level 3
	10:51:27	651.45	894	SWICS on at level 1
	10:53:35	653.58	881	Detector bias heater off
	10:56:15	656.25	852	Solar port heaters off
	10:57:19	657.32	861	WFOV BB heater off
	10:57:51	657.85	871	MFOV BB heater off
	10:58:23	658.38	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/10/89	10:58:55	658.92	891	SWICS off
End internal calibration sequence.				
05/10/89	11:05:51	665.85	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
05/10/89	11:13:19	673.32	822	Elevate to solar ports (Sun)
	11:13:51	673.85	814	Azimuth to position A
	11:14:23	674.38	883	Detector bias heater on at level 2
	11:24:31	684.52	831	SMA shutter cycle on
	12:05:35	725.58	832	SMA shutter cycle off
	12:06:07	726.12	881	Detector bias heater off
	12:06:39	726.65	882	Detector bias heater on at level 1
	12:09:19	729.32	881	Detector bias heater off
	12:09:51	729.85	883	Detector bias heater on at level 2
	12:12:31	732.52	881	Detector bias heater off
	12:13:03	733.05	884	Detector bias heater on at level 3
	12:15:43	735.72	881	Detector bias heater off
	12:16:15	736.25	852	Solar port heaters off
	12:32:15	752.25	851	Solar port heaters on
	12:32:47	752.78	821	Elevate to internal source (stow)
	12:48:47	768.78	811	Azimuth to 0°
End revised solar calibration sequence.				
05/10/89	13:14:23	794.38	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/10/89	13:33:03	813.05	882	Detector bias heater on at level 1
	13:35:43	815.72	881	Detector bias heater off
	13:36:15	816.25	883	Detector bias heater on at level 2
	13:38:55	818.92	881	Detector bias heater off
	13:39:27	819.45	884	Detector bias heater on at level 3
	13:42:07	822.12	881	Detector bias heater off
End postcalibration sequence.				
05/18/89	14:08:14			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
05/23/89	18:12:15	1092.25	419	Address azimuth position A
	18:12:31	1092.52	2xx	Data command, high byte
	18:13:35	1093.58	1xx	Data command, low byte
End azimuth angle load commands ( $A = 66.53^\circ$ ).				
Begin revised preinternal calibration sequence.				
05/24/89	06:31:11	391.18	882	Detector bias heater on at level 1
	06:33:51	393.85	881	Detector bias heater off
	06:34:23	394.38	883	Detector bias heater on at level 2
	06:37:03	397.05	881	Detector bias heater off
	06:37:35	397.58	884	Detector bias heater on at level 3
	06:40:15	400.25	881	Detector bias heater off
	08:10:23	490.38	821	Elevate to internal source (stow)
	08:26:23	506.38	862	WFOV BB heater on at temp. 1

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/24/89	08:42:23	522.38	872	MFOV BB heater on at temp. 1
	09:47:27	587.45	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/24/89	09:49:03	589.05	881	Detector bias heater off
	09:49:35	589.58	852	Solar port heaters off
	09:50:07	590.12	821	Elevate to internal source (stow)
	09:50:39	590.65	851	Solar port heaters on
	09:52:47	592.78	882	Detector bias heater on at level 1
	09:56:31	596.52	892	SWICS on at level 3
	09:59:43	599.72	881	Detector bias heater off
	10:03:27	603.45	862	WFOV BB heater on at temp. 1
	10:03:59	603.98	872	MFOV BB heater on at temp. 1
	10:05:03	605.05	891	SWICS off
	10:18:23	618.38	883	Detector bias heater on at level 2
	10:22:07	622.12	893	SWICS on at level 2
	10:25:19	625.32	881	Detector bias heater off
	10:29:03	629.05	863	WFOV BB heater on at temp. 2
	10:29:35	629.58	873	MFOV BB heater on at temp. 2
	10:30:39	630.65	891	SWICS off
	10:43:59	643.98	884	Detector bias heater on at level 3
	10:47:43	647.72	894	SWICS on at level 1
	10:49:51	649.85	881	Detector bias heater off
	10:52:31	652.52	852	Solar port heaters off
	10:53:35	653.58	861	WFOV BB heater off
	10:54:07	654.12	871	MFOV BB heater off
	10:54:39	654.65	851	Solar port heaters on
	10:55:11	655.18	891	SWICS off
End internal calibration sequence.				
05/24/89	11:02:07	662.12	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
05/24/89	11:09:35	669.58	822	Elevate to solar ports (Sun)
	11:10:07	670.12	814	Azimuth to position A
	11:10:39	670.65	883	Detector bias heater on at level 2
	11:20:47	680.78	831	SMA shutter cycle on
	12:01:51	721.85	832	SMA shutter cycle off
	12:02:23	722.38	881	Detector bias heater off
	12:02:55	722.92	882	Detector bias heater on at level 1
	12:05:35	725.58	881	Detector bias heater off
	12:06:07	726.12	883	Detector bias heater on at level 2
	12:08:47	728.78	881	Detector bias heater off
	12:09:19	729.32	884	Detector bias heater on at level 3
	12:11:59	731.98	881	Detector bias heater off
	12:12:31	732.52	852	Solar port heaters off
	12:28:31	748.52	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/24/89	12:29:03	749.05	821	Elevate to internal source (stow)
	12:45:03	765.05	811	Azimuth to 0°
End revised solar calibration sequence.				
05/24/89	13:10:39	790.65	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/24/89	14:34:55	874.92	882	Detector bias heater on at level 1
	14:37:35	877.58	881	Detector bias heater off
	14:38:07	878.12	883	Detector bias heater on at level 2
	14:40:47	880.78	881	Detector bias heater off
	14:41:19	881.32	884	Detector bias heater on at level 3
	14:43:59	883.98	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
05/31/89	17:53:19	1073.32	419	Address azimuth position A
	17:54:23	1074.38	2xx	Data command, high byte
	17:55:27	1075.45	1xx	Data command, low byte
End azimuth angle load commands (A = 33.30°).				
Begin revised preinternal calibration sequence.				
06/01/89	01:25:35	85.58	882	Detector bias heater on at level 1
	01:28:15	88.25	881	Detector bias heater off
	01:28:47	88.78	883	Detector bias heater on at level 2
	01:31:27	91.45	881	Detector bias heater off
	01:31:59	91.98	884	Detector bias heater on at level 3
	01:34:39	94.65	881	Detector bias heater off
	03:04:47	184.78	821	Elevate to internal source (stow)
	03:20:47	200.78	862	WFOV BB heater on at temp. 1
	03:36:47	216.78	872	MFOV BB heater on at temp. 1
	04:41:51	281.85	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/01/89	04:43:27	283.45	881	Detector bias heater off
	04:43:59	283.98	852	Solar port heaters off
	04:44:31	284.52	821	Elevate to internal source (stow)
	04:45:03	285.05	851	Solar port heaters on
	04:47:11	287.18	882	Detector bias heater on at level 1
	04:50:55	290.92	892	SWICS on at level 3
	04:54:07	294.12	881	Detector bias heater off
	04:57:51	297.85	862	WFOV BB heater on at temp. 1
	04:58:23	298.38	872	MFOV BB heater on at temp. 1
	04:59:27	299.45	891	SWICS off
	05:12:47	312.78	883	Detector bias heater on at level 2
	05:16:31	316.52	893	SWICS on at level 2
	05:19:43	319.72	881	Detector bias heater off
	05:23:27	323.45	863	WFOV BB heater on at temp. 2
	05:23:59	323.98	873	MFOV BB heater on at temp. 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/01/89	05:25:03	325.05	891	SWICS off
	05:38:23	338.38	884	Detector bias heater on at level 3
	05:42:07	342.12	894	SWICS on at level 1
	05:44:15	344.25	881	Detector bias heater off
	05:46:55	346.92	852	Solar port heaters off
	05:47:59	347.98	861	WFOV BB heater off
	05:48:31	348.52	871	MFOV BB heater off
	05:49:03	349.05	851	Solar port heaters on
	05:49:35	349.58	891	SWICS off
End internal calibration sequence.				
06/01/89	05:56:31	356.52	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
06/01/89	06:03:59	363.98	822	Elevate to solar ports (Sun)
	06:04:31	364.52	814	Azimuth to position A
	06:05:03	365.05	883	Detector bias heater on at level 2
	06:15:11	375.18	831	SMA shutter cycle on
	06:56:15	416.25	832	SMA shutter cycle off
	06:56:47	416.78	881	Detector bias heater off
	06:57:19	417.32	882	Detector bias heater on at level 1
	06:59:59	419.98	881	Detector bias heater off
	07:00:31	420.52	883	Detector bias heater on at level 2
	07:03:11	423.18	881	Detector bias heater off
	07:03:43	423.72	884	Detector bias heater on at level 3
	07:06:23	426.38	881	Detector bias heater off
	07:06:55	426.92	852	Solar port heaters off
	07:22:55	442.92	851	Solar port heaters on
	07:23:27	443.45	821	Elevate to internal source (stow)
	07:39:27	459.45	811	Azimuth to 0°
End revised solar calibration sequence.				
06/01/89	08:05:03	485.05	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/01/89	09:29:19	569.32	882	Detector bias heater on at level 1
	09:31:59	571.98	881	Detector bias heater off
	09:32:31	572.52	883	Detector bias heater on at level 2
	09:35:11	575.18	881	Detector bias heater off
	09:35:43	575.72	884	Detector bias heater on at level 3
	09:38:23	578.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/15/89	19:14:23	1154.38	419	Address azimuth position A
	19:14:55	1154.92	2xx	Data command, high byte
	19:16:31	1156.52	1xx	Data command, low byte
End azimuth angle load commands (A = 33.30°).				

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
06/16/89	02:59:59	179.98	882	Detector bias heater on at level 1
	03:02:39	182.65	881	Detector bias heater off
	03:03:11	183.18	883	Detector bias heater on at level 2
	03:05:51	185.85	881	Detector bias heater off
	03:06:23	186.38	884	Detector bias heater on at level 3
	03:09:03	189.05	881	Detector bias heater off
	04:38:39	278.65	821	Elevate to internal source (stow)
	04:54:39	294.65	862	WFOV BB heater on at temp. 1
	05:10:39	310.65	872	MFOV BB heater on at temp. 1
	06:15:43	375.72	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/16/89	06:17:19	377.32	881	Detector bias heater off
	06:17:51	377.85	852	Solar port heaters off
	06:18:23	378.38	821	Elevate to internal source (stow)
	06:18:55	378.92	851	Solar port heaters on
	06:21:03	381.05	882	Detector bias heater on at level 1
	06:24:47	384.78	892	SWICS on at level 3
	06:27:59	387.98	881	Detector bias heater off
	06:31:43	391.72	862	WFOV BB heater on at temp. 1
	06:32:15	392.25	872	MFOV BB heater on at temp. 1
	06:33:19	393.32	891	SWICS off
	06:46:39	406.65	883	Detector bias heater on at level 2
	06:50:23	410.38	893	SWICS on at level 2
	06:53:35	413.58	881	Detector bias heater off
	06:57:19	417.32	863	WFOV BB heater on at temp. 2
	06:57:51	417.85	873	MFOV BB heater on at temp. 2
	06:58:55	418.92	891	SWICS off
	07:12:15	432.25	884	Detector bias heater on at level 3
	07:15:59	435.98	894	SWICS on at level 1
	07:18:07	438.12	881	Detector bias heater off
	07:20:47	440.78	852	Solar port heaters off
	07:21:51	441.85	861	WFOV BB heater off
	07:22:23	442.38	871	MFOV BB heater off
	07:22:55	442.92	851	Solar port heaters on
	07:23:27	443.45	891	SWICS off
End internal calibration sequence.				
06/16/89	07:30:23	450.38	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
06/16/89	07:37:51	457.85	822	Elevate to solar ports (Sun)
	07:38:23	458.38	814	Azimuth to position A
	07:38:55	458.92	883	Detector bias heater on at level 2
	07:49:03	469.05	831	SMA shutter cycle on
	08:30:07	510.12	832	SMA shutter cycle off



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/16/89	08:30:39	510.65	881	Detector bias heater off
	08:31:11	511.18	882	Detector bias heater on at level 1
	08:33:51	513.85	881	Detector bias heater off
	08:34:23	514.38	883	Detector bias heater on at level 2
	08:37:03	517.05	881	Detector bias heater off
	08:37:35	517.58	884	Detector bias heater on at level 3
	08:40:15	520.25	881	Detector bias heater off
	08:40:47	520.78	852	Solar port heaters off
	08:56:47	536.78	851	Solar port heaters on
	08:57:19	537.32	821	Elevate to internal source (stow)
	09:13:19	553.32	811	Azimuth to 0°
End revised solar calibration sequence.				
06/16/89	09:38:55	578.92	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/16/89	11:03:11	663.18	882	Detector bias heater on at level 1
	11:05:51	665.85	881	Detector bias heater off
	11:06:23	666.38	883	Detector bias heater on at level 2
	11:09:03	669.05	881	Detector bias heater off
	11:09:35	669.58	884	Detector bias heater on at level 3
	11:12:15	672.25	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
06/20/89	18:20:31	1100.52	419	Address azimuth position A
	18:21:03	1101.05	2xx	Data command, high byte
	18:22:07	1102.12	1xx	Data command, low byte
End azimuth angle load commands (A = 56.18°).				
Begin revised preinternal calibration sequence.				
06/21/89	08:43:27	523.45	882	Detector bias heater on at level 1
	08:46:07	526.12	881	Detector bias heater off
	08:46:39	526.65	883	Detector bias heater on at level 2
	08:49:19	529.32	881	Detector bias heater off
	08:49:51	529.85	884	Detector bias heater on at level 3
	08:52:31	532.52	881	Detector bias heater off
	10:22:39	622.65	821	Elevate to internal source (stow)
	10:38:39	638.65	862	WFOV BB heater on at temp. 1
	10:54:39	654.65	872	MFOV BB heater on at temp. 1
	11:59:43	719.72	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/21/89	12:01:19	721.32	881	Detector bias heater off
	12:01:51	721.85	852	Solar port heaters off
	12:02:23	722.38	821	Elevate to internal source (stow)
	12:02:55	722.92	851	Solar port heaters on
	12:05:03	725.05	882	Detector bias heater on at level 1
	12:08:47	728.78	892	SWICS on at level 3

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/21/89	12:11:59	731.98	881	Detector bias heater off
	12:15:43	735.72	862	WFOV BB heater on at temp. 1
	12:16:15	736.25	872	MFOV BB heater on at temp. 1
	12:17:19	737.32	891	SWICS off
	12:30:39	750.65	883	Detector bias heater on at level 2
	12:34:23	754.38	893	SWICS on at level 2
	12:37:35	757.58	881	Detector bias heater off
	12:41:19	761.32	863	WFOV BB heater on at temp. 2
	12:41:51	761.85	873	MFOV BB heater on at temp. 2
	12:42:55	762.92	891	SWICS off
	12:56:15	776.25	884	Detector bias heater on at level 3
	12:59:59	779.98	894	SWICS on at level 1
	13:02:07	782.12	881	Detector bias heater off
	13:04:47	784.78	852	Solar port heaters off
	13:05:51	785.85	861	WFOV BB heater off
	13:06:23	786.38	871	MFOV BB heater off
	13:06:55	786.92	851	Solar port heaters on
	13:07:27	787.45	891	SWICS off
End internal calibration sequence.				
06/21/89	13:14:23	794.38	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
06/21/89	13:21:51	801.85	822	Elevate to solar ports (Sun)
	13:22:23	802.38	814	Azimuth to position A
	13:22:55	802.92	883	Detector bias heater on at level 2
	13:33:03	813.05	831	SMA shutter cycle on
	14:14:07	854.12	832	SMA shutter cycle off
	14:14:39	854.65	881	Detector bias heater off
	14:15:11	855.18	882	Detector bias heater on at level 1
	14:17:51	857.85	881	Detector bias heater off
	14:18:23	858.38	883	Detector bias heater on at level 2
	14:21:03	861.05	881	Detector bias heater off
	14:21:35	861.58	884	Detector bias heater on at level 3
	14:24:15	864.25	881	Detector bias heater off
	14:24:47	864.78	852	Solar port heaters off
	14:40:47	880.78	851	Solar port heaters on
	14:41:19	881.32	821	Elevate to internal source (stow)
	14:57:19	897.32	811	Azimuth to 0°
End revised solar calibration sequence.				
06/21/89	15:22:55	922.92	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/21/89	16:47:11	1007.18	882	Detector bias heater on at level 1
	16:49:51	1009.85	881	Detector bias heater off
	16:50:23	1010.38	883	Detector bias heater on at level 2
	16:53:03	1013.05	881	Detector bias heater off
	16:53:35	1013.58	884	Detector bias heater on at level 3

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/21/89	16:56:15	1016.25	881	Detector bias heater off
End postcalibration sequence.				
06/28/89	00:56:14			Yaw maneuver to $X$ -axis positive
Begin azimuth angle load commands for solar calibration.				
07/04/89	10:35:27	635.45	419	Address azimuth position A
	10:35:59	635.98	2xx	Data command, high byte
	10:37:03	637.05	1xx	Data command, low byte
End azimuth angle load commands ( $A = 70.20^\circ$ ).				
Begin revised preinternal calibration sequence.				
07/05/89	07:44:47	464.78	882	Detector bias heater on at level 1
	07:47:27	467.45	881	Detector bias heater off
	07:47:59	467.98	883	Detector bias heater on at level 2
	07:50:39	470.65	881	Detector bias heater off
	07:51:11	471.18	884	Detector bias heater on at level 3
	07:53:51	473.85	881	Detector bias heater off
	08:53:03	533.05	821	Elevate to internal source (stow)
	09:09:03	549.05	862	WFOV BB heater on at temp. 1
	09:25:03	565.05	872	MFOV BB heater on at temp. 1
	10:30:07	630.12	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
07/05/89	10:31:43	631.72	881	Detector bias heater off
	10:32:12	632.25	852	Solar port heaters off
	10:32:47	632.78	821	Elevate to internal source (stow)
	10:33:19	633.32	851	Solar port heaters on
	10:35:27	635.45	882	Detector bias heater on at level 1
	10:39:11	639.18	892	SWICS on at level 3
	10:42:23	642.38	881	Detector bias heater off
	10:46:07	646.12	862	WFOV BB heater on at temp. 1
	10:46:39	646.65	872	MFOV BB heater on at temp. 1
	10:47:43	647.72	891	SWICS off
	11:01:03	661.05	883	Detector bias heater on at level 2
	11:04:47	664.78	893	SWICS on at level 2
	11:07:59	667.98	881	Detector bias heater off
	11:11:43	671.72	863	WFOV BB heater on at temp. 2
	11:12:15	672.25	873	MFOV BB heater on at temp. 2
	11:13:19	673.32	891	SWICS off
	11:26:39	686.65	884	Detector bias heater on at level 3
	11:30:23	690.38	894	SWICS on at level 1
	11:32:31	692.52	881	Detector bias heater off
	11:35:11	695.18	852	Solar port heaters off
	11:36:15	696.25	861	WFOV BB heater off
	11:36:47	696.78	871	MFOV BB heater off
	11:37:19	697.32	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/05/89	11:37:51	697.85	891	SWICS off
End internal calibration sequence.				
07/05/89	11:44:47	704.78	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
07/05/89	11:52:15	712.25	822	Elevate to solar ports (Sun)
	11:52:47	712.78	814	Azimuth to position A
	11:53:19	713.32	883	Detector bias heater on at level 2
	12:03:27	723.45	831	SMA shutter cycle on
	12:44:31	764.52	832	SMA shutter cycle off
	12:45:03	765.05	881	Detector bias heater off
	12:45:35	765.58	882	Detector bias heater on at level 1
	12:48:15	768.25	881	Detector bias heater off
	12:48:47	768.78	883	Detector bias heater on at level 2
	12:51:27	771.45	881	Detector bias heater off
	12:51:59	771.98	884	Detector bias heater on at level 3
	12:54:39	774.65	881	Detector bias heater off
	12:55:11	775.18	852	Solar port heaters off
	13:11:11	791.18	851	Solar port heaters on
	13:11:43	791.72	821	Elevate to internal source (stow)
	13:27:43	807.72	811	Azimuth to 0°
End revised solar calibration sequence.				
07/05/89	13:53:19	833.32	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
07/05/89	14:11:59	851.98	882	Detector bias heater on at level 1
	14:14:39	854.65	881	Detector bias heater off
	14:15:11	855.18	883	Detector bias heater on at level 2
	14:17:51	857.85	881	Detector bias heater off
	14:18:23	858.38	884	Detector bias heater on at level 3
	14:21:03	861.05	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
07/18/89	15:11:43	911.72	419	Address azimuth position A
	15:12:15	912.25	2xx	Data command, high byte
	15:13:19	913.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 57.83^\circ$ ).				
Begin revised preinternal calibration sequence.				
07/19/89	08:42:23	522.38	882	Detector bias heater on at level 1
	08:45:03	525.05	881	Detector bias heater off
	08:45:35	525.58	883	Detector bias heater on at level 2
	08:48:15	528.25	881	Detector bias heater off
	08:48:47	528.78	884	Detector bias heater on at level 3
	08:51:27	531.45	881	Detector bias heater off
	09:50:39	590.65	821	Elevate to internal source (stow)
	10:06:39	606.65	862	WFOV BB heater on at temp. 1
	10:22:39	622.65	872	MFOV BB heater on at temp. 1

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/19/89	11:27:43	687.72	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
07/19/89	11:29:19	689.32	881	Detector bias heater off
	11:29:51	689.85	852	Solar port heaters off
	11:30:23	690.38	821	Elevate to internal source (stow)
	11:30:55	690.92	851	Solar port heaters on
	11:33:03	693.05	882	Detector bias heater on at level 1
	11:36:47	696.78	892	SWICS on at level 3
	11:39:59	699.98	881	Detector bias heater off
	11:43:43	703.72	862	WFOV BB heater on at temp. 1
	11:44:15	704.25	872	MFOV BB heater on at temp. 1
	11:45:19	705.32	891	SWICS off
	11:58:39	718.65	883	Detector bias heater on at level 2
	12:02:23	722.38	893	SWICS on at level 2
	12:05:35	725.58	881	Detector bias heater off
	12:09:19	729.32	863	WFOV BB heater on at temp. 2
	12:09:51	729.85	873	MFOV BB heater on at temp. 2
	12:10:55	730.92	891	SWICS off
	12:24:15	744.25	884	Detector bias heater on at level 3
	12:27:59	747.98	894	SWICS on at level 1
	12:30:07	750.12	881	Detector bias heater off
	12:32:47	752.78	852	Solar port heaters off
	12:33:51	753.85	861	WFOV BB heater off
	12:34:23	754.38	871	MFOV BB heater off
	12:34:55	754.92	851	Solar port heaters on
	12:35:27	755.45	891	SWICS off
End internal calibration sequence.				
07/19/89	12:42:23	762.38	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
07/19/89	12:49:51	769.85	822	Elevate to solar ports (Sun)
	12:50:23	770.38	814	Azimuth to position A
	12:50:55	770.92	883	Detector bias heater on at level 2
	13:01:03	781.05	831	SMA shutter cycle on
	13:42:07	822.12	832	SMA shutter cycle off
	13:42:39	822.65	881	Detector bias heater off
	13:43:11	823.18	882	Detector bias heater on at level 1
	13:45:51	825.85	881	Detector bias heater off
	13:46:23	826.38	883	Detector bias heater on at level 2
	13:49:03	829.05	881	Detector bias heater off
	13:49:35	829.58	884	Detector bias heater on at level 3
	13:52:15	832.25	881	Detector bias heater off
	13:52:47	832.78	852	Solar port heaters off
	14:08:47	848.78	851	Solar port heaters on
	14:09:19	849.32	821	Elevate to internal source (stow)

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/19/89	14:25:19	865.32	811	Azimuth to 0°
End revised solar calibration sequence.				
07/19/89	14:50:55	890.92	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
07/19/89	15:09:35	909.58	882	Detector bias heater on at level 1
	15:12:15	912.25	881	Detector bias heater off
	15:12:47	912.78	883	Detector bias heater on at level 2
	15:15:27	915.45	881	Detector bias heater off
	15:15:59	915.98	884	Detector bias heater on at level 3
	15:18:39	918.65	881	Detector bias heater off
End postcalibration sequence.				
07/27/89	14:05:18			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
08/01/89	14:23:43	863.72	419	Address azimuth position A
	14:24:15	864.25	2xx	Data command, high byte
	14:25:19	865.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 77.33^\circ$ ).				
Begin revised preinternal calibration sequence.				
08/02/89	08:07:11	487.18	882	Detector bias heater on at level 1
	08:09:51	489.85	881	Detector bias heater off
	08:10:23	490.38	883	Detector bias heater on at level 2
	08:13:03	493.05	881	Detector bias heater off
	08:13:35	493.58	884	Detector bias heater on at level 3
	08:16:15	496.25	881	Detector bias heater off
	09:45:51	585.85	821	Elevate to internal source (stow)
	10:01:51	601.85	862	WFOV BB heater on at temp. 1
	10:17:51	617.85	872	MFOV BB heater on at temp. 1
	11:22:55	682.92	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/02/89	11:24:31	684.52	881	Detector bias heater off
	11:25:03	685.05	852	Solar port heaters off
	11:25:35	685.58	821	Elevate to internal source (stow)
	11:26:07	686.12	851	Solar port heaters on
	11:28:15	688.25	882	Detector bias heater on at level 1
	11:31:59	691.98	892	SWICS on at level 3
	11:35:11	695.18	881	Detector bias heater off
	11:38:55	698.92	862	WFOV BB heater on at temp. 1
	11:39:27	699.45	872	MFOV BB heater on at temp. 1
	11:40:31	700.52	891	SWICS off
	11:53:51	713.85	883	Detector bias heater on at level 2
	11:57:35	717.58	893	SWICS on at level 2
	12:00:47	720.78	881	Detector bias heater off
	12:04:31	724.52	863	WFOV BB heater on at temp. 2
	12:05:03	725.05	873	MFOV BB heater on at temp. 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/02/89	12:06:07	726.12	891	SWICS off
	12:19:27	739.45	884	Detector bias heater on at level 3
	12:23:11	743.18	894	SWICS on at level 1
	12:25:19	745.32	881	Detector bias heater off
	12:27:59	747.98	852	Solar port heaters off
	12:29:03	749.05	861	WFOV BB heater off
	12:29:35	749.58	871	MFOV BB heater off
	12:30:07	750.12	851	Solar port heaters on
	12:30:39	750.65	891	SWICS off
End internal calibration sequence.				
08/02/89	12:37:35	757.58	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/02/89	12:45:03	765.05	822	Elevate to solar ports (Sun)
	12:45:35	765.58	814	Azimuth to position A
	12:46:07	766.12	883	Detector bias heater on at level 2
	12:56:15	776.25	831	SMA shutter cycle on
	13:37:19	817.32	832	SMA shutter cycle off
	13:37:51	817.85	881	Detector bias heater off
	13:38:23	818.38	882	Detector bias heater on at level 1
	13:41:03	821.05	881	Detector bias heater off
	13:41:35	821.58	883	Detector bias heater on at level 2
	13:44:15	824.25	881	Detector bias heater off
	13:44:47	824.78	884	Detector bias heater on at level 3
	13:47:27	827.45	881	Detector bias heater off
	13:47:59	827.98	852	Solar port heaters off
	14:03:59	843.98	851	Solar port heaters on
	14:04:31	844.52	821	Elevate to internal source (stow)
	14:20:31	860.52	811	Azimuth to 0°
End revised solar calibration sequence.				
08/02/89	14:46:07	886.12	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/02/89	16:10:23	970.38	882	Detector bias heater on at level 1
	16:13:03	973.05	881	Detector bias heater off
	16:13:35	973.58	883	Detector bias heater on at level 2
	16:16:15	976.25	881	Detector bias heater off
	16:16:47	976.78	884	Detector bias heater on at level 3
	16:19:27	979.45	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/13/89	18:33:19	1113.32	419	Address azimuth position A
	18:33:51	1113.85	2xx	Data command, high byte
	18:34:55	1114.92	1xx	Data command, low byte
End azimuth angle load commands (A = 30.08°).				

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
08/14/89	00:30:07	30.12	882	Detector bias heater on at level 1
	00:32:47	32.78	881	Detector bias heater off
	00:33:19	33.32	883	Detector bias heater on at level 2
	00:35:59	35.98	881	Detector bias heater off
	00:36:31	36.52	884	Detector bias heater on at level 3
	00:39:11	39.18	881	Detector bias heater off
	02:08:47	128.78	821	Elevate to internal source (stow)
	02:24:47	144.78	862	WFOV BB heater on at temp. 1
	02:40:47	160.78	872	MFOV BB heater on at temp. 1
03:45:51	225.85	823	Elevate to nadir (Earth)	
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/14/89	03:47:27	227.45	881	Detector bias heater off
	03:47:59	227.98	852	Solar port heaters off
	03:48:31	228.52	821	Elevate to internal source (stow)
	03:49:03	229.05	851	Solar port heaters on
	03:51:11	231.18	882	Detector bias heater on at level 1
	03:54:55	234.92	892	SWICS on at level 3
	03:58:07	238.12	881	Detector bias heater off
	04:01:51	241.85	862	WFOV BB heater on at temp. 1
	04:02:23	242.38	872	MFOV BB heater on at temp. 1
	04:03:27	243.45	891	SWICS off
	04:16:47	256.78	883	Detector bias heater on at level 2
	04:20:31	260.52	893	SWICS on at level 2
	04:23:43	263.72	881	Detector bias heater off
	04:27:27	267.45	863	WFOV BB heater on at temp. 2
	04:27:59	267.98	873	MFOV BB heater on at temp. 2
	04:29:03	269.05	891	SWICS off
	04:42:23	282.38	884	Detector bias heater on at level 3
	04:46:07	286.12	894	SWICS on at level 1
	04:48:15	288.25	881	Detector bias heater off
	04:50:55	290.92	852	Solar port heaters off
	04:51:59	291.98	861	WFOV BB heater off
	04:52:31	292.52	871	MFOV BB heater off
	04:53:03	293.05	851	Solar port heaters on
	04:53:35	293.58	891	SWICS off
End internal calibration sequence.				
08/14/89	05:00:31	300.52	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/14/89	05:07:59	307.98	822	Elevate to solar ports (Sun)
	05:08:31	308.52	814	Azimuth to position A
	05:09:03	309.05	883	Detector bias heater on at level 2
	05:19:11	319.18	831	SMA shutter cycle on
	06:00:15	360.25	832	SMA shutter cycle off



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/14/89	06:00:47	360.78	881	Detector bias heater off
	06:01:19	361.32	882	Detector bias heater on at level 1
	06:03:59	363.98	881	Detector bias heater off
	06:04:31	364.52	883	Detector bias heater on at level 2
	06:07:11	367.18	881	Detector bias heater off
	06:07:43	367.72	884	Detector bias heater on at level 3
	06:10:23	370.38	881	Detector bias heater off
	06:10:55	370.92	852	Solar port heaters off
	06:26:55	386.92	851	Solar port heaters on
	06:27:27	387.45	821	Elevate to internal source (stow)
	06:43:27	403.45	811	Azimuth to 0°
End revised solar calibration sequence.				
08/14/89	07:09:03	429.05	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/14/89	08:33:19	513.32	882	Detector bias heater on at level 1
	08:35:59	515.98	881	Detector bias heater off
	08:36:31	516.52	883	Detector bias heater on at level 2
	08:39:11	519.18	881	Detector bias heater off
	08:39:43	519.72	884	Detector bias heater on at level 3
	08:42:23	522.38	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/24/89	17:10:39	1030.65	419	Address azimuth position A
	17:11:11	1031.18	2xx	Data command, high byte
	17:12:15	1032.25	1xx	Data command, low byte
End azimuth angle load commands ( $A = 30.08^\circ$ ).				
Begin revised preinternal calibration sequence.				
08/25/89	02:44:31	164.52	882	Detector bias heater on at level 1
	02:47:11	167.18	881	Detector bias heater off
	02:47:43	167.72	883	Detector bias heater on at level 2
	02:50:23	170.38	881	Detector bias heater off
	02:50:55	170.92	884	Detector bias heater on at level 3
	02:53:35	173.58	881	Detector bias heater off
	04:23:43	263.72	821	Elevate to internal source (stow)
	04:39:43	279.72	862	WFOV BB heater on at temp. 1
	04:55:43	295.72	872	MFOV BB heater on at temp. 1
	06:00:47	360.78	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/25/89	06:02:23	362.38	881	Detector bias heater off
	06:02:55	362.92	852	Solar port heaters off
	06:03:27	363.45	821	Elevate to internal source (stow)
	06:03:59	363.98	851	Solar port heaters on
	06:06:07	366.12	882	Detector bias heater on at level 1
	06:09:51	369.85	892	SWICS on at level 3

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/25/89	06:13:03	373.05	881	Detector bias heater off
	06:16:47	376.78	862	WFOV BB heater on at temp. 1
	06:17:19	377.32	872	MFOV BB heater on at temp. 1
	06:18:23	378.38	891	SWICS off
	06:31:43	391.72	883	Detector bias heater on at level 2
	06:35:27	395.45	893	SWICS on at level 2
	06:38:39	398.65	881	Detector bias heater off
	06:42:23	402.38	863	WFOV BB heater on at temp. 2
	06:42:55	402.92	873	MFOV BB heater on at temp. 2
	06:43:59	403.98	891	SWICS off
	06:57:19	417.32	884	Detector bias heater on at level 3
	07:01:03	421.05	894	SWICS on at level 1
	07:03:11	423.18	881	Detector bias heater off
	07:05:51	425.85	852	Solar port heaters off
	07:06:55	426.92	861	WFOV BB heater off
	07:07:27	427.45	871	MFOV BB heater off
	07:07:59	427.98	851	Solar port heaters on
	07:08:31	428.52	891	SWICS off
End internal calibration sequence.				
08/25/89	07:15:27	435.45	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/25/89	07:22:55	442.92	822	Elevate to solar ports (Sun)
	07:23:27	443.45	814	Azimuth to position A
	07:23:59	443.98	883	Detector bias heater on at level 2
	07:34:07	454.12	831	SMA shutter cycle on
	08:15:11	495.18	832	SMA shutter cycle off
	08:15:43	495.72	881	Detector bias heater off
	08:16:15	496.25	882	Detector bias heater on at level 1
	08:18:55	498.92	881	Detector bias heater off
	08:19:27	499.45	883	Detector bias heater on at level 2
	08:22:07	502.12	881	Detector bias heater off
	08:22:39	502.65	884	Detector bias heater on at level 3
	08:25:19	505.32	881	Detector bias heater off
	08:25:51	505.85	852	Solar port heaters off
	08:41:51	521.85	851	Solar port heaters on
	08:42:23	522.38	821	Elevate to internal source (stow)
	08:58:23	538.38	811	Azimuth to 0°
End revised solar calibration sequence.				
08/25/89	09:23:59	563.98	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/25/89	10:48:15	648.25	882	Detector bias heater on at level 1
	10:50:55	650.92	881	Detector bias heater off
	10:51:27	651.45	883	Detector bias heater on at level 2
	10:54:07	654.12	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/25/89	10:54:39	654.65	884	Detector bias heater on at level 3
	10:57:19	657.32	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
08/29/89	16:21:35	981.58	419	Address azimuth position A
	16:22:39	982.65	2xx	Data command, high byte
	16:23:43	983.72	1xx	Data command, low byte
End azimuth angle load commands ( $A = 51.30^\circ$ ).				
Begin revised preinternal calibration sequence.				
08/30/89	06:53:35	413.58	882	Detector bias heater on at level 1
	06:56:15	416.25	881	Detector bias heater off
	06:56:47	416.78	883	Detector bias heater on at level 2
	06:59:27	419.45	881	Detector bias heater off
	06:59:59	419.98	884	Detector bias heater on at level 3
	07:02:39	422.65	881	Detector bias heater off
	08:32:15	512.25	821	Elevate to internal source (stow)
	08:48:15	528.25	862	WFOV BB heater on at temp. 1
	09:04:15	544.25	872	MFOV BB heater on at temp. 1
	10:09:19	609.32	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/30/89	10:10:55	610.92	881	Detector bias heater off
	10:11:27	611.45	852	Solar port heaters off
	10:11:59	611.98	821	Elevate to internal source (stow)
	10:12:31	612.52	851	Solar port heaters on
	10:14:39	614.65	882	Detector bias heater on at level 1
	10:18:23	618.38	892	SWICS on at level 3
	10:21:35	621.58	881	Detector bias heater off
	10:25:19	625.32	862	WFOV BB heater on at temp. 1
	10:25:51	625.85	872	MFOV BB heater on at temp. 1
	10:26:55	626.92	891	SWICS off
	10:40:15	640.25	883	Detector bias heater on at level 2
	10:43:59	643.98	893	SWICS on at level 2
	10:47:11	647.18	881	Detector bias heater off
	10:50:55	650.92	863	WFOV BB heater on at temp. 2
	10:51:27	651.45	873	MFOV BB heater on at temp. 2
	10:52:31	652.52	891	SWICS off
	11:05:51	665.85	884	Detector bias heater on at level 3
	11:09:35	669.58	894	SWICS on at level 1
	11:11:43	671.72	881	Detector bias heater off
	11:14:23	674.38	852	Solar port heaters off
	11:15:27	675.45	861	WFOV BB heater off
	11:15:59	675.98	871	MFOV BB heater off
	11:16:31	676.52	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/30/89	11:17:03	677.05	891	SWICS off
End internal calibration sequence.				
08/30/89	11:23:59	683.98	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
08/30/89	11:31:27	691.45	822	Elevate to solar ports (Sun)
	11:31:59	691.98	814	Azimuth to position A
	11:32:31	692.52	883	Detector bias heater on at level 2
	11:42:39	702.65	831	SMA shutter cycle on
	12:23:43	743.72	832	SMA shutter cycle off
	12:24:15	744.25	881	Detector bias heater off
	12:24:47	744.78	882	Detector bias heater on at level 1
	12:27:27	747.45	881	Detector bias heater off
	12:27:59	747.98	883	Detector bias heater on at level 2
	12:30:39	750.65	881	Detector bias heater off
	12:31:11	751.18	884	Detector bias heater on at level 3
	12:33:51	753.85	881	Detector bias heater off
	12:34:23	754.38	852	Solar port heaters off
	12:50:23	770.38	851	Solar port heaters on
	12:50:55	770.92	821	Elevate to internal source (stow)
	13:06:55	786.92	811	Azimuth to 0°
End revised solar calibration sequence.				
08/30/89	13:32:31	812.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/30/89	14:56:47	896.78	882	Detector bias heater on at level 1
	14:59:27	899.45	881	Detector bias heater off
	14:59:59	899.98	883	Detector bias heater on at level 2
	15:02:39	902.65	881	Detector bias heater off
	15:03:11	903.18	884	Detector bias heater on at level 3
	15:05:51	905.85	881	Detector bias heater off
End postcalibration sequence.				
09/06/89	15:14:06			Yaw maneuver to X-axis positive
Begin azimuth angle load commands for solar calibration.				
09/12/89	19:11:43	1151.72	419	Address azimuth position A
	19:12:15	1152.25	2xx	Data command, high byte
	19:13:19	1153.32	1xx	Data command, low byte
End azimuth angle load commands (A = 68.03°).				
Begin revised preinternal calibration sequence.				
09/13/89	07:28:15	448.25	882	Detector bias heater on at level 1
	07:30:55	450.92	881	Detector bias heater off
	07:31:27	451.45	883	Detector bias heater on at level 2
	07:34:07	454.12	881	Detector bias heater off
	07:34:39	454.65	884	Detector bias heater on at level 3
	07:37:19	457.32	881	Detector bias heater off
	08:36:31	516.52	821	Elevate to internal source (stow)

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/13/89	08:52:31	532.52	862	WFOV BB heater on at temp. 1
	09:08:31	548.52	872	MFOV BB heater on at temp. 1
	10:13:35	613.58	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
09/13/89	10:15:11	615.18	881	Detector bias heater off
	10:15:43	615.72	852	Solar port heaters off
	10:16:15	616.25	821	Elevate to internal source (stow)
	10:16:47	616.78	851	Solar port heaters on
	10:18:55	618.92	882	Detector bias heater on at level 1
	10:22:39	622.65	892	SWICS on at level 3
	10:25:51	625.85	881	Detector bias heater off
	10:29:35	629.58	862	WFOV BB heater on at temp. 1
	10:30:07	630.12	872	MFOV BB heater on at temp. 1
	10:31:11	631.18	891	SWICS off
	10:44:31	644.52	883	Detector bias heater on at level 2
	10:48:15	648.25	893	SWICS on at level 2
	10:51:27	651.45	881	Detector bias heater off
	10:55:11	655.18	863	WFOV BB heater on at temp. 2
	10:55:43	655.72	873	MFOV BB heater on at temp. 2
	10:56:47	656.78	891	SWICS off
	11:10:07	670.12	884	Detector bias heater on at level 3
	11:13:51	673.85	894	SWICS on at level 1
	11:15:59	675.98	881	Detector bias heater off
	11:18:39	678.65	852	Solar port heaters off
	11:19:43	679.72	861	WFOV BB heater off
	11:20:15	680.25	871	MFOV BB heater off
	11:20:47	680.78	851	Solar port heaters on
	11:21:19	681.32	891	SWICS off
End internal calibration sequence.				
09/13/89	11:28:15	688.25	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
09/13/89	11:35:43	695.72	822	Elevate to solar ports (Sun)
	11:36:15	696.25	814	Azimuth to position A
	11:36:47	696.78	883	Detector bias heater on at level 2
	11:46:55	706.92	831	SMA shutter cycle on
	12:27:59	747.98	832	SMA shutter cycle off
	12:28:31	748.52	881	Detector bias heater off
	12:29:03	749.05	882	Detector bias heater on at level 1
	12:31:43	751.72	881	Detector bias heater off
	12:32:15	752.25	883	Detector bias heater on at level 2
	12:34:55	754.92	881	Detector bias heater off
	12:35:27	755.45	884	Detector bias heater on at level 3
	12:38:07	758.12	881	Detector bias heater off
	12:38:39	758.65	852	Solar port heaters off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/13/89	12:54:39	774.65	851	Solar port heaters on
	12:55:11	775.18	821	Elevate to internal source (stow)
	13:11:11	791.18	811	Azimuth to 0°
End revised solar calibration sequence.				
09/13/89	13:36:47	816.78	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
09/13/89	13:55:27	835.45	882	Detector bias heater on at level 1
	13:58:07	838.12	881	Detector bias heater off
	13:58:55	838.92	883	Detector bias heater on at level 2
	14:01:19	841.32	881	Detector bias heater off
	14:01:51	841.85	884	Detector bias heater on at level 3
	14:04:31	844.52	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
09/26/89	18:18:55	1098.92	419	Address azimuth position A
	18:19:59	1099.98	2xx	Data command, high byte
	18:21:03	1101.05	1xx	Data command, low byte
End azimuth angle load commands (A = 29.78°).				
Begin revised preinternal calibration sequence.				
09/27/89	06:50:55	410.92	882	Detector bias heater on at level 1
	06:53:35	413.58	881	Detector bias heater off
	06:54:07	414.12	883	Detector bias heater on at level 2
	06:56:47	416.78	881	Detector bias heater off
	06:57:19	417.32	884	Detector bias heater on at level 3
	06:59:59	419.98	881	Detector bias heater off
	07:59:11	479.18	821	Elevate to internal source (stow)
	08:15:11	495.18	862	WFOV BB heater on at temp. 1
	08:31:11	511.18	872	MFOV BB heater on at temp. 1
	09:36:15	576.25	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
09/27/89	09:37:51	577.85	881	Detector bias heater off
	09:38:23	578.38	852	Solar port heaters off
	09:38:55	578.92	821	Elevate to internal source (stow)
	09:39:27	579.45	851	Solar port heaters on
	09:41:35	581.58	882	Detector bias heater on at level 1
	09:45:19	585.32	892	SWICS on at level 3
	09:48:31	588.52	881	Detector bias heater off
	09:52:15	592.25	862	WFOV BB heater on at temp. 1
	09:52:47	592.78	872	MFOV BB heater on at temp. 1
	09:53:51	593.85	891	SWICS off
	10:07:11	607.18	883	Detector bias heater on at level 2
	10:10:55	610.92	893	SWICS on at level 2
	10:14:07	614.12	881	Detector bias heater off
	10:17:51	617.85	863	WFOV BB heater on at temp. 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/27/89	10:18:23	618.38	873	MFOV BB heater on at temp. 2
	10:19:27	619.45	891	SWICS off
	10:32:47	632.78	884	Detector bias heater on at level 3
	10:36:31	636.52	894	SWICS on at level 1
	10:38:39	638.65	881	Detector bias heater off
	10:41:19	641.32	852	Solar port heaters off
	10:42:23	642.38	861	WFOV BB heater off
	10:42:55	642.92	871	MFOV BB heater off
	10:43:27	643.45	851	Solar port heaters on
	10:43:59	643.98	891	SWICS off
End internal calibration sequence.				
09/27/89	10:50:55	650.92	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
09/27/89	10:58:23	658.38	822	Elevate to solar ports (Sun)
	10:58:55	658.92	814	Azimuth to position A
	10:59:27	659.45	883	Detector bias heater on at level 2
	11:09:35	669.58	831	SMA shutter cycle on
	11:50:39	710.65	832	SMA shutter cycle off
	11:51:11	711.18	881	Detector bias heater off
	11:51:43	711.72	882	Detector bias heater on at level 1
	11:54:23	714.38	881	Detector bias heater off
	11:54:55	714.92	883	Detector bias heater on at level 2
	11:57:35	717.58	881	Detector bias heater off
	11:58:07	718.12	884	Detector bias heater on at level 3
	12:00:47	720.78	881	Detector bias heater off
	12:01:19	721.32	852	Solar port heaters off
	12:17:19	737.32	851	Solar port heaters on
	12:17:51	737.85	821	Elevate to internal source (stow)
	12:33:51	753.85	811	Azimuth to 0°
End revised solar calibration sequence.				
09/27/89	12:59:27	779.45	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
09/27/89	13:18:07	798.12	882	Detector bias heater on at level 1
	13:20:47	800.78	881	Detector bias heater off
	13:21:19	801.32	883	Detector bias heater on at level 2
	13:23:59	803.98	881	Detector bias heater off
	13:24:31	804.52	884	Detector bias heater on at level 3
	13:27:11	807.18	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
10/10/89	17:36:47	1056.78	419	Address azimuth position A
	17:37:51	1057.85	2xx	Data command, high byte
	17:38:55	1058.92	1xx	Data command, low byte
End azimuth angle load commands (A = 73.20°).				

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
10/11/89	07:42:07	462.12	882	Detector bias heater on at level 1
	07:44:47	464.78	881	Detector bias heater off
	07:45:19	465.32	883	Detector bias heater on at level 2
	07:47:59	467.98	881	Detector bias heater off
	07:48:31	468.52	884	Detector bias heater on at level 3
	07:51:11	471.18	881	Detector bias heater off
	08:50:23	530.38	821	Elevate to internal source (stow)
	09:06:23	546.38	862	WFOV BB heater on at temp. 1
	09:22:23	562.38	872	MFOV BB heater on at temp. 1
	10:27:27	627.45	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
10/11/89	10:29:03	629.05	881	Detector bias heater off
	10:29:35	629.58	852	Solar port heaters off
	10:30:07	630.12	821	Elevate to internal source (stow)
	10:30:39	630.65	851	Solar port heaters on
	10:32:47	632.78	882	Detector bias heater on at level 1
	10:36:31	636.52	892	SWICS on at level 3
	10:39:43	639.72	881	Detector bias heater off
	10:43:27	643.45	862	WFOV BB heater on at temp. 1
	10:43:59	643.98	872	MFOV BB heater on at temp. 1
	10:45:03	645.05	891	SWICS off
	10:58:23	658.38	883	Detector bias heater on at level 2
	11:02:07	662.12	893	SWICS on at level 2
	11:05:19	665.32	881	Detector bias heater off
	11:09:03	669.05	863	WFOV BB heater on at temp. 2
	11:09:35	669.58	873	MFOV BB heater on at temp. 2
	11:10:39	670.65	891	SWICS off
	11:23:59	683.98	884	Detector bias heater on at level 3
	11:27:43	687.72	894	SWICS on at level 1
	11:29:51	689.85	881	Detector bias heater off
	11:32:31	692.52	852	Solar port heaters off
	11:33:35	693.58	861	WFOV BB heater off
	11:34:07	694.12	871	MFOV BB heater off
	11:34:39	694.65	851	Solar port heaters on
	11:35:11	695.18	891	SWICS off
End internal calibration sequence.				
10/11/89	11:42:07	702.12	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
10/11/89	11:49:35	709.58	822	Elevate to solar ports (Sun)
	11:50:07	710.12	814	Azimuth to position A
	11:50:39	710.65	883	Detector bias heater on at level 2
	12:00:47	720.78	831	SMA shutter cycle on
	12:41:51	761.85	832	SMA shutter cycle off



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/11/89	12:42:23	762.38	881	Detector bias heater off
	12:42:55	762.92	882	Detector bias heater on at level 1
	12:45:35	765.58	881	Detector bias heater off
	12:46:07	766.12	883	Detector bias heater on at level 2
	12:48:47	768.78	881	Detector bias heater off
	12:49:19	769.32	884	Detector bias heater on at level 3
	12:51:59	771.98	881	Detector bias heater off
	12:52:31	772.52	852	Solar port heaters off
	13:08:31	788.52	851	Solar port heaters on
	13:09:03	789.05	821	Elevate to internal source (stow)
	13:25:03	805.05	811	Azimuth to 0°
End revised solar calibration sequence.				
10/11/89	13:50:39	830.65	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
10/11/89	14:09:19	849.32	882	Detector bias heater on at level 1
	14:11:59	851.98	881	Detector bias heater off
	14:12:31	852.52	883	Detector bias heater on at level 2
	14:15:11	855.18	881	Detector bias heater off
	14:15:43	855.72	884	Detector bias heater on at level 3
	14:18:23	858.38	881	Detector bias heater off
End postcalibration sequence.				
10/13/89	15:15:10			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
10/24/89	12:08:15	728.25	419	Address azimuth position A
	12:08:47	728.78	2xx	Data command, high byte
	12:09:51	729.85	1xx	Data command, low byte
End azimuth angle load commands ( $A = 55.88^\circ$ ).				
Begin revised preinternal calibration sequence.				
10/25/89	08:38:07	518.12	882	Detector bias heater on at level 1
	08:40:47	520.78	881	Detector bias heater off
	08:41:19	521.32	883	Detector bias heater on at level 2
	08:43:59	523.98	881	Detector bias heater off
	08:44:31	524.52	884	Detector bias heater on at level 3
	08:47:11	527.18	881	Detector bias heater off
	10:17:19	617.32	821	Elevate to internal source (stow)
	10:33:19	633.32	862	WFOV BB heater on at temp. 1
	10:49:19	649.32	872	MFOV BB heater on at temp. 1
	11:54:23	714.38	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
10/25/89	11:55:59	715.98	881	Detector bias heater off
	11:56:31	716.52	852	Solar port heaters off
	11:57:03	717.05	821	Elevate to internal source (stow)
	11:57:35	717.58	851	Solar port heaters on
	11:59:43	719.72	882	Detector bias heater on at level 1

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/25/89	12:03:27	723.45	892	SWICS on at level 3
	12:06:39	726.65	881	Detector bias heater off
	12:10:23	730.38	862	WFOV BB heater on at temp. 1
	12:10:55	730.92	872	MFOV BB heater on at temp. 1
	12:11:59	731.98	891	SWICS off
	12:25:19	745.32	883	Detector bias heater on at level 2
	12:29:03	749.05	893	SWICS on at level 2
	12:32:15	752.25	881	Detector bias heater off
	12:35:59	755.98	863	WFOV BB heater on at temp. 2
	12:36:31	756.52	873	MFOV BB heater on at temp. 2
	12:37:35	757.58	891	SWICS off
	12:50:55	770.92	884	Detector bias heater on at level 3
	12:54:39	774.65	894	SWICS on at level 1
	12:56:47	776.78	881	Detector bias heater off
	12:59:27	779.45	852	Solar port heaters off
	13:00:31	780.52	861	WFOV BB heater off
	13:01:03	781.05	871	MFOV BB heater off
	13:01:35	781.58	851	Solar port heaters on
	13:02:07	782.12	891	SWICS off
End internal calibration sequence.				
10/25/89	13:09:03	789.05	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
10/25/89	13:16:31	796.52	822	Elevate to solar ports (Sun)
	13:17:03	797.05	814	Azimuth to position A
	13:17:35	797.58	883	Detector bias heater on at level 2
	13:27:43	807.72	831	SMA shutter cycle on
	14:08:47	848.78	832	SMA shutter cycle off
	14:09:19	849.32	881	Detector bias heater off
	14:09:51	849.85	882	Detector bias heater on at level 1
	14:12:31	852.52	881	Detector bias heater off
	14:13:03	853.05	883	Detector bias heater on at level 2
	14:15:43	855.72	881	Detector bias heater off
	14:16:15	856.25	884	Detector bias heater on at level 3
	14:18:55	858.92	881	Detector bias heater off
	14:19:27	859.45	852	Solar port heaters off
	14:35:27	875.45	851	Solar port heaters on
	14:35:59	875.98	821	Elevate to internal source (stow)
	14:51:59	891.98	811	Azimuth to 0°
End revised solar calibration sequence.				
10/25/89	15:17:35	917.58	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
10/25/89	16:41:51	1001.85	882	Detector bias heater on at level 1
	16:44:31	1004.52	881	Detector bias heater off
	16:45:03	1005.05	883	Detector bias heater on at level 2
	16:47:43	1007.72	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/25/89	16:48:15	1008.25	884	Detector bias heater on at level 3
	16:50:55	1010.92	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
11/07/89	19:10:39	1150.65	419	Address azimuth position A
	19:11:11	1151.18	2xx	Data command, high byte
	19:12:15	1152.25	1xx	Data command, low byte
End azimuth angle load commands ( $A = 58.13^\circ$ ).				
Begin revised preinternal calibration sequence.				
11/08/89	07:54:55	474.92	882	Detector bias heater on at level 1
	07:57:35	477.58	881	Detector bias heater off
	07:58:07	478.12	883	Detector bias heater on at level 2
	08:00:47	480.78	881	Detector bias heater off
	08:01:19	481.32	884	Detector bias heater on at level 3
	08:03:59	483.98	881	Detector bias heater off
	09:34:07	574.12	821	Elevate to internal source (stow)
	09:50:07	590.12	862	WFOV BB heater on at temp. 1
	10:06:07	606.12	872	MFOV BB heater on at temp. 1
	11:11:11	671.18	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/08/89	11:12:47	672.78	881	Detector bias heater off
	11:13:19	673.32	852	Solar port heaters off
	11:13:51	673.85	821	Elevate to internal source (stow)
	11:14:23	674.38	851	Solar port heaters on
	11:16:31	676.52	882	Detector bias heater on at level 1
	11:20:15	680.25	892	SWICS on at level 3
	11:23:27	683.45	881	Detector bias heater off
	11:27:11	687.18	862	WFOV BB heater on at temp. 1
	11:27:43	687.72	872	MFOV BB heater on at temp. 1
	11:28:47	688.78	891	SWICS off
	11:42:07	702.12	883	Detector bias heater on at level 2
	11:45:51	705.85	893	SWICS on at level 2
	11:49:03	709.05	881	Detector bias heater off
	11:52:47	712.78	863	WFOV BB heater on at temp. 2
	11:53:19	713.32	873	MFOV BB heater on at temp. 2
	11:54:23	714.38	891	SWICS off
	12:07:43	727.72	884	Detector bias heater on at level 3
	12:11:27	731.45	894	SWICS on at level 1
	12:13:35	733.58	881	Detector bias heater off
	12:16:15	736.25	852	Solar port heaters off
	12:17:19	737.32	861	WFOV BB heater off
	12:17:51	737.85	871	MFOV BB heater off
	12:18:23	738.38	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/08/89	12:18:55	738.92	891	SWICS off
End internal calibration sequence.				
11/08/89	12:25:51	745.85	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
11/08/89	12:33:19	753.32	822	Elevate to solar ports (Sun)
	12:33:51	753.85	814	Azimuth to position A
	12:34:23	754.38	883	Detector bias heater on at level 2
	12:44:31	764.52	831	SMA shutter cycle on
	13:25:35	805.58	832	SMA shutter cycle off
	13:26:07	806.12	881	Detector bias heater off
	13:26:39	806.65	882	Detector bias heater on at level 1
	13:29:19	809.32	881	Detector bias heater off
	13:29:51	809.85	883	Detector bias heater on at level 2
	13:32:31	812.52	881	Detector bias heater off
	13:33:03	813.05	884	Detector bias heater on at level 3
	13:35:43	815.72	881	Detector bias heater off
	13:36:15	816.25	852	Solar port heaters off
	13:52:15	832.25	851	Solar port heaters on
	13:52:47	832.78	821	Elevate to internal source (stow)
	14:08:47	848.78	811	Azimuth to 0°
End revised solar calibration sequence.				
11/08/89	14:34:23	874.38	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/08/89	15:58:39	958.65	882	Detector bias heater on at level 1
	16:01:19	961.32	881	Detector bias heater off
	16:01:51	961.85	883	Detector bias heater on at level 2
	16:04:31	964.52	881	Detector bias heater off
	16:05:03	965.05	884	Detector bias heater on at level 3
	16:07:43	967.72	881	Detector bias heater off
End postcalibration sequence.				
11/14/89	19:26:06			Yaw maneuver to X-axis positive
Begin azimuth angle load commands for solar calibration.				
11/21/89	18:47:43	1127.72	419	Address azimuth position A
	18:48:15	1128.25	2xx	Data command, high byte
	18:49:19	1129.32	1xx	Data command, low byte
End azimuth angle load commands (A = 68.10°).				
Begin revised preinternal calibration sequence.				
11/22/89	08:25:51	505.85	882	Detector bias heater on at level 1
	08:28:31	508.52	881	Detector bias heater off
	08:29:03	509.05	883	Detector bias heater on at level 2
	08:31:43	511.72	881	Detector bias heater off
	08:32:15	512.25	884	Detector bias heater on at level 3
	08:34:55	514.92	881	Detector bias heater off
	09:34:07	574.12	821	Elevate to internal source (stow)
	09:50:07	590.12	862	WFOV BB heater on at temp. 1

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/22/89	10:06:07	606.12	872	MFOV BB heater on at temp. 1
	11:11:11	671.18	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/22/89	11:12:47	672.78	881	Detector bias heater off
	11:13:19	673.32	852	Solar port heaters off
	11:13:51	673.85	821	Elevate to internal source (stow)
	11:14:23	674.38	851	Solar port heaters on
	11:16:31	676.52	882	Detector bias heater on at level 1
	11:20:15	680.25	892	SWICS on at level 3
	11:23:27	683.45	881	Detector bias heater off
	11:27:11	687.18	862	WFOV BB heater on at temp. 1
	11:27:43	687.72	872	MFOV BB heater on at temp. 1
	11:28:47	688.78	891	SWICS off
	11:42:07	702.12	883	Detector bias heater on at level 2
	11:45:51	705.85	893	SWICS on at level 2
	11:49:03	709.05	881	Detector bias heater off
	11:52:47	712.78	863	WFOV BB heater on at temp. 2
	11:53:19	713.32	873	MFOV BB heater on at temp. 2
	11:54:23	714.38	891	SWICS off
	12:07:43	727.72	884	Detector bias heater on at level 3
	12:11:27	731.45	894	SWICS on at level 1
	12:13:35	733.58	881	Detector bias heater off
	12:16:15	736.25	852	Solar port heaters off
	12:17:19	737.32	861	WFOV BB heater off
	12:17:51	737.85	871	MFOV BB heater off
	12:18:23	738.38	851	Solar port heaters on
	12:18:55	738.92	891	SWICS off
End internal calibration sequence.				
11/22/89	12:25:51	745.85	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
11/22/89	12:33:19	753.32	822	Elevate to solar ports (Sun)
	12:33:51	753.85	814	Azimuth to position A
	12:34:23	754.38	883	Detector bias heater on at level 2
	12:44:31	764.52	831	SMA shutter cycle on
	13:25:35	805.58	832	SMA shutter cycle off
	13:26:07	806.12	881	Detector bias heater off
	13:26:39	806.65	882	Detector bias heater on at level 1
	13:29:19	809.32	881	Detector bias heater off
	13:29:51	809.85	883	Detector bias heater on at level 2
	13:32:31	812.52	881	Detector bias heater off
	13:33:03	813.05	884	Detector bias heater on at level 3
	13:35:43	815.72	881	Detector bias heater off
	13:36:15	816.25	852	Solar port heaters off
	13:52:15	832.25	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/22/89	13:52:47	832.78	821	Elevate to internal source (stow)
	14:08:47	848.78	811	Azimuth to 0°
End revised solar calibration sequence.				
11/22/89	14:34:23	874.38	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/22/89	14:53:03	893.05	882	Detector bias heater on at level 1
	14:55:43	895.72	881	Detector bias heater off
	14:56:15	896.25	883	Detector bias heater on at level 2
	14:58:55	898.92	881	Detector bias heater off
	14:59:27	899.45	884	Detector bias heater on at level 3
	15:02:07	902.12	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
11/29/89	20:36:31	1236.52	419	Address azimuth position A
	20:37:03	1237.05	2xx	Data command, high byte
	20:38:07	1238.12	1xx	Data command, low byte
End azimuth angle load commands (A = 33.38°).				
Begin revised preinternal calibration sequence.				
11/30/89	03:18:39	198.65	882	Detector bias heater on at level 1
	03:21:19	201.32	881	Detector bias heater off
	03:21:51	201.85	883	Detector bias heater on at level 2
	03:24:31	204.52	881	Detector bias heater off
	03:25:03	205.05	884	Detector bias heater on at level 3
	03:27:43	207.72	881	Detector bias heater off
	04:26:55	266.92	821	Elevate to internal source (stow)
	04:42:55	282.92	862	WFOV BB heater on at temp. 1
	04:58:55	298.92	872	MFOV BB heater on at temp. 1
	06:03:59	363.98	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/30/89	06:05:35	365.58	881	Detector bias heater off
	06:06:07	366.12	852	Solar port heaters off
	06:06:39	366.65	821	Elevate to internal source (stow)
	06:07:11	367.18	851	Solar port heaters on
	06:09:19	369.32	882	Detector bias heater on at level 1
	06:13:03	373.05	892	SWICS on at level 3
	06:16:15	376.25	881	Detector bias heater off
	06:19:59	379.98	862	WFOV BB heater on at temp. 1
	06:20:31	380.52	872	MFOV BB heater on at temp. 1
	06:21:35	381.58	891	SWICS off
	06:34:55	394.92	883	Detector bias heater on at level 2
	06:38:39	398.65	893	SWICS on at level 2
	06:41:51	401.85	881	Detector bias heater off
	06:45:35	405.58	863	WFOV BB heater on at temp. 2
	06:46:07	406.12	873	MFOV BB heater on at temp. 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/30/89	06:47:11	407.18	891	SWICS off
	07:00:31	420.52	884	Detector bias heater on at level 3
	07:04:15	424.25	894	SWICS on at level 1
	07:06:23	426.38	881	Detector bias heater off
	07:09:03	429.05	852	Solar port heaters off
	07:10:07	430.12	861	WFOV BB heater off
	07:10:39	430.65	871	MFOV BB heater off
	07:11:11	431.18	851	Solar port heaters on
	07:11:43	431.72	891	SWICS off
End internal calibration sequence.				
11/30/89	07:18:39	438.65	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
11/30/89	07:26:07	446.12	822	Elevate to solar ports (Sun)
	07:26:39	446.65	814	Azimuth to position A
	07:27:11	447.18	883	Detector bias heater on at level 2
	07:37:19	457.32	831	SMA shutter cycle on
	08:18:23	498.38	832	SMA shutter cycle off
	08:18:55	498.92	881	Detector bias heater off
	08:19:27	499.45	882	Detector bias heater on at level 1
	08:22:07	502.12	881	Detector bias heater off
	08:22:39	502.65	883	Detector bias heater on at level 2
	08:25:19	505.32	881	Detector bias heater off
	08:25:51	505.85	884	Detector bias heater on at level 3
	08:28:31	508.52	881	Detector bias heater off
	08:29:03	509.05	852	Solar port heaters off
	08:45:03	525.05	851	Solar port heaters on
	08:45:35	525.58	821	Elevate to internal source (stow)
	09:01:35	541.58	811	Azimuth to 0°
End revised solar calibration sequence.				
11/30/89	09:27:11	567.18	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/30/89	09:45:51	585.85	882	Detector bias heater on at level 1
	09:48:31	588.52	881	Detector bias heater off
	09:49:03	589.05	883	Detector bias heater on at level 2
	09:51:43	591.72	881	Detector bias heater off
	09:52:15	592.25	884	Detector bias heater on at level 3
	09:54:55	594.92	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
12/15/89	03:03:43	183.72	882	Detector bias heater on at level 1
	03:06:23	186.38	881	Detector bias heater off
	03:06:55	186.92	883	Detector bias heater on at level 2
	03:09:35	189.58	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/15/89	03:10:07	190.12	884	Detector bias heater on at level 3
	03:12:47	192.78	881	Detector bias heater off
End revised preinternal calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/15/89	03:51:11	231.18	419	Address azimuth position A
	03:51:43	231.72	2xx	Data command, high byte
	03:52:47	232.78	1xx	Data command, low byte
End azimuth angle load commands ( $A = 32.78^\circ$ ).				
Continue preinternal calibration sequence.				
12/15/89	04:11:59	251.98	821	Elevate to internal source (stow)
	04:27:59	267.98	862	WFOV BB heater on at temp. 1
	04:43:59	283.98	872	MFOV BB heater on at temp. 1
	05:49:03	349.05	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
12/15/89	05:50:39	350.65	881	Detector bias heater off
	05:51:11	351.18	852	Solar port heaters off
	05:51:43	351.72	821	Elevate to internal source (stow)
	05:52:15	352.25	851	Solar port heaters on
	05:54:23	354.38	882	Detector bias heater on at level 1
	05:58:07	358.12	892	SWICS on at level 3
	06:01:19	361.32	881	Detector bias heater off
	06:05:03	365.05	862	WFOV BB heater on at temp. 1
	06:05:35	365.58	872	MFOV BB heater on at temp. 1
	06:06:39	366.65	891	SWICS off
	06:19:59	379.98	883	Detector bias heater on at level 2
	06:23:43	383.72	893	SWICS on at level 2
	06:26:55	386.92	881	Detector bias heater off
	06:30:39	390.65	863	WFOV BB heater on at temp. 2
	06:31:11	391.18	873	MFOV BB heater on at temp. 2
	06:32:15	392.25	891	SWICS off
	06:45:35	405.58	884	Detector bias heater on at level 3
	06:49:19	409.32	894	SWICS on at level 1
	06:51:27	411.45	881	Detector bias heater off
	06:54:07	414.12	852	Solar port heaters off
	06:55:11	415.18	861	WFOV BB heater off
	06:55:43	415.72	871	MFOV BB heater off
	06:56:15	416.25	851	Solar port heaters on
	06:56:47	416.78	891	SWICS off
End internal calibration sequence.				
12/15/89	07:03:43	423.72	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
12/15/89	07:11:11	431.18	822	Elevate to solar ports (Sun)
	07:11:43	431.72	814	Azimuth to position A
	07:12:15	432.25	883	Detector bias heater on at level 2



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/15/89	07:22:23	442.38	831	SMA shutter cycle on
	08:03:27	483.45	832	SMA shutter cycle off
	08:03:59	483.98	881	Detector bias heater off
	08:04:31	484.52	882	Detector bias heater on at level 1
	08:07:11	487.18	881	Detector bias heater off
	08:07:43	487.72	883	Detector bias heater on at level 2
	08:10:23	490.38	881	Detector bias heater off
	08:10:55	490.92	884	Detector bias heater on at level 3
	08:13:35	493.58	881	Detector bias heater off
	08:14:07	494.12	852	Solar port heaters off
	08:30:07	510.12	851	Solar port heaters on
	08:30:39	510.65	821	Elevate to internal source (stow)
	08:46:39	526.65	811	Azimuth to 0°
End revised solar calibration sequence.				
12/15/89	09:12:15	552.25	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/15/89	09:30:55	570.92	882	Detector bias heater on at level 1
	09:33:35	573.58	881	Detector bias heater off
	09:34:07	574.12	883	Detector bias heater on at level 2
	09:36:47	576.78	881	Detector bias heater off
	09:37:19	577.32	884	Detector bias heater on at level 3
	09:39:59	579.98	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
12/19/89	16:53:35	1013.58	419	Address azimuth position A
	16:54:07	1014.12	2xx	Data command, high byte
	16:55:11	1015.18	1xx	Data command, low byte
End azimuth angle load commands ( $A = 56.03^\circ$ ).				
Begin revised preinternal calibration sequence.				
12/20/89	08:40:15	520.25	882	Detector bias heater on at level 1
	08:42:55	522.92	881	Detector bias heater off
	08:43:27	523.45	883	Detector bias heater on at level 2
	08:46:07	526.12	881	Detector bias heater off
	08:46:39	526.65	884	Detector bias heater on at level 3
	08:49:19	529.32	881	Detector bias heater off
	09:48:31	588.52	821	Elevate to internal source (stow)
	10:04:31	604.52	862	WFOV BB heater on at temp. 1
	10:20:31	620.52	872	MFOV BB heater on at temp. 1
	11:25:35	685.58	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
12/20/89	11:27:11	687.18	881	Detector bias heater off
	11:27:43	687.72	852	Solar port heaters off
	11:28:15	688.25	821	Elevate to internal source (stow)

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/20/89	11:28:47	688.78	851	Solar port heaters on
	11:30:55	690.92	882	Detector bias heater on at level 1
	11:34:39	694.65	892	SWICS on at level 3
	11:37:51	697.85	881	Detector bias heater off
	11:41:35	701.58	862	WFOV BB heater on at temp. 1
	11:42:07	702.12	872	MFOV BB heater on at temp. 1
	11:43:11	703.18	891	SWICS off
	11:56:31	716.52	883	Detector bias heater on at level 2
	12:00:15	720.25	893	SWICS on at level 2
	12:03:27	723.45	881	Detector bias heater off
	12:07:11	727.18	863	WFOV BB heater on at temp. 2
	12:07:43	727.72	873	MFOV BB heater on at temp. 2
	12:08:47	728.78	891	SWICS off
	12:22:07	742.12	884	Detector bias heater on at level 3
	12:25:51	745.85	894	SWICS on at level 1
	12:27:59	747.98	881	Detector bias heater off
	12:30:39	750.65	852	Solar port heaters off
	12:31:43	751.72	861	WFOV BB heater off
	12:32:15	752.25	871	MFOV BB heater off
	12:32:47	752.78	851	Solar port heaters on
	12:33:19	753.32	891	SWICS off
End internal calibration sequence.				
12/20/89	12:40:15	760.25	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
12/20/89	12:47:43	767.72	822	Elevate to solar ports (Sun)
	12:48:15	768.25	814	Azimuth to position A
	12:48:47	768.78	883	Detector bias heater on at level 2
	12:58:55	778.92	831	SMA shutter cycle on
	13:39:59	819.98	832	SMA shutter cycle off
	13:40:31	820.52	881	Detector bias heater off
	13:41:03	821.05	882	Detector bias heater on at level 1
	13:43:43	823.72	881	Detector bias heater off
	13:44:15	824.25	883	Detector bias heater on at level 2
	13:46:55	826.92	881	Detector bias heater off
	13:47:27	827.45	884	Detector bias heater on at level 3
	13:50:07	830.12	881	Detector bias heater off
	13:50:39	830.65	852	Solar port heaters off
	14:06:39	846.65	851	Solar port heaters on
	14:07:11	847.18	821	Elevate to internal source (stow)
	14:23:11	863.18	811	Azimuth to 0°
End revised solar calibration sequence.				
12/20/89	14:48:47	888.78	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/20/89	15:07:27	907.45	882	Detector bias heater on at level 1
	15:10:07	910.12	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/20/89	15:10:39	910.65	883	Detector bias heater on at level 2
	15:13:19	913.32	881	Detector bias heater off
	15:13:51	913.85	884	Detector bias heater on at level 3
	15:16:31	916.52	881	Detector bias heater off
End postcalibration sequence.				
12/28/89	19:00:14			Yaw maneuver to $X$ -axis negative
Begin azimuth angle load commands for solar calibration.				
01/02/90	12:14:06	734.10	419	Address azimuth position A
	12:14:38	734.63	2xx	Data command, high byte
	12:15:42	735.70	1xx	Data command, low byte
End azimuth angle load commands ( $A = 69.60^\circ$ ).				
Begin revised preinternal calibration sequence.				
01/03/90	07:51:10	471.17	882	Detector bias heater on at level 1
	07:53:50	473.83	881	Detector bias heater off
	07:54:22	474.37	883	Detector bias heater on at level 2
	07:57:02	477.03	881	Detector bias heater off
	07:57:34	477.57	884	Detector bias heater on at level 3
	08:00:14	480.23	881	Detector bias heater off
	09:29:50	569.83	821	Elevate to internal source (stow)
	09:45:50	585.83	862	WFOV BB heater on at temp. 1
	10:01:50	601.83	872	MFOV BB heater on at temp. 1
	11:06:54	666.90	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/03/90	11:08:30	668.50	881	Detector bias heater off
	11:09:02	669.03	852	Solar port heaters off
	11:09:34	669.57	821	Elevate to internal source (stow)
	11:10:06	670.10	851	Solar port heaters on
	11:12:14	672.23	882	Detector bias heater on at level 1
	11:15:58	675.97	892	SWICS on at level 3
	11:19:10	679.17	881	Detector bias heater off
	11:22:54	682.90	862	WFOV BB heater on at temp. 1
	11:23:26	683.43	872	MFOV BB heater on at temp. 1
	11:24:30	684.50	891	SWICS off
	11:37:50	697.83	883	Detector bias heater on at level 2
	11:41:34	701.57	893	SWICS on at level 2
	11:44:46	704.77	881	Detector bias heater off
	11:48:30	708.50	863	WFOV BB heater on at temp. 2
	11:49:02	709.03	873	MFOV BB heater on at temp. 2
	11:50:06	710.10	891	SWICS off
	12:03:26	723.43	884	Detector bias heater on at level 3
	12:07:10	727.17	894	SWICS on at level 1
	12:09:18	729.30	881	Detector bias heater off
	12:11:58	731.97	852	Solar port heaters off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/30/90	12:13:02	733.03	861	WFOV BB heater off
	12:13:34	733.57	871	MFOV BB heater off
	12:14:06	734.10	851	Solar port heaters on
	12:14:38	734.63	891	SWICS off
End internal calibration sequence.				
01/03/90	12:21:34	741.57	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
01/03/90	12:29:02	749.03	822	Elevate to solar ports (Sun)
	12:29:34	749.57	814	Azimuth to position A
	12:30:06	750.10	883	Detector bias heater on at level 2
	12:40:14	760.23	831	SMA shutter cycle on
	13:21:18	801.30	832	SMA shutter cycle off
	13:21:50	801.83	881	Detector bias heater off
	13:22:22	802.37	882	Detector bias heater on at level 1
	13:25:02	805.03	881	Detector bias heater off
	13:25:34	805.57	883	Detector bias heater on at level 2
	13:28:14	808.23	881	Detector bias heater off
	13:28:46	808.77	884	Detector bias heater on at level 3
	13:31:26	811.43	881	Detector bias heater off
	13:31:58	811.97	852	Solar port heaters off
	13:47:58	827.97	851	Solar port heaters on
	13:48:30	828.50	821	Elevate to internal source (stow)
	14:04:30	844.50	811	Azimuth to 0°
End revised solar calibration sequence.				
01/03/90	14:30:06	870.10	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/03/90	15:54:22	954.37	882	Detector bias heater on at level 1
	15:57:02	957.03	881	Detector bias heater off
	15:57:34	957.57	883	Detector bias heater on at level 2
	16:00:14	960.23	881	Detector bias heater off
	16:00:46	960.77	884	Detector bias heater on at level 3
	16:03:26	963.43	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
01/16/90	13:23:58	803.97	419	Address azimuth position A
	13:24:30	804.50	2xx	Data command, high byte
	13:25:34	805.57	1xx	Data command, low byte
End azimuth angle load commands (A = 58.50°).				
Begin revised preinternal calibration sequence.				
01/17/90	06:59:58	419.97	882	Detector bias heater on at level 1
	07:02:38	422.63	881	Detector bias heater off
	07:03:10	423.17	883	Detector bias heater on at level 2
	07:05:50	425.83	881	Detector bias heater off
	07:06:22	426.37	884	Detector bias heater on at level 3
	07:09:02	429.03	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/17/90	08:38:38	518.63	821	Elevate to internal source (stow)
	08:54:38	534.63	862	WFOV BB heater on at temp. 1
	09:10:38	550.63	872	MFOV BB heater on at temp. 1
	10:15:42	615.70	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/17/90	10:17:18	617.30	881	Detector bias heater off
	10:17:50	617.83	852	Solar port heaters off
	10:18:22	618.37	821	Elevate to internal source (stow)
	10:18:54	618.90	851	Solar port heaters on
	10:21:02	621.03	882	Detector bias heater on at level 1
	10:24:46	624.77	892	SWICS on at level 3
	10:27:58	627.97	881	Detector bias heater off
	10:31:42	631.70	862	WFOV BB heater on at temp. 1
	10:32:14	632.23	872	MFOV BB heater on at temp. 1
	10:33:18	633.30	891	SWICS off
	10:46:38	646.63	883	Detector bias heater on at level 2
	10:50:22	650.37	893	SWICS on at level 2
	10:53:34	653.57	881	Detector bias heater off
	10:57:18	657.30	863	WFOV BB heater on at temp. 2
	10:57:50	657.83	873	MFOV BB heater on at temp. 2
	10:58:54	658.90	891	SWICS off
	11:12:14	672.23	884	Detector bias heater on at level 3
	11:15:58	675.97	894	SWICS on at level 1
	11:18:06	678.10	881	Detector bias heater off
	11:20:46	680.77	852	Solar port heaters off
01/17/90	11:21:50	681.83	861	WFOV BB heater off
	11:22:22	682.37	871	MFOV BB heater off
	11:22:54	682.90	851	Solar port heaters on
	11:23:26	683.43	891	SWICS off
End internal calibration sequence.				
01/17/90	11:30:22	690.37	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
01/17/90	11:37:50	697.83	822	Elevate to solar ports (Sun)
	11:38:22	698.37	814	Azimuth to position A
	11:38:54	698.90	883	Detector bias heater on at level 2
	11:49:02	709.03	831	SMA shutter cycle on
	12:30:06	750.10	832	SMA shutter cycle off
	12:30:38	750.63	881	Detector bias heater off
	12:31:10	751.17	882	Detector bias heater on at level 1
	12:33:50	753.83	881	Detector bias heater off
	12:34:22	754.37	883	Detector bias heater on at level 2
	12:37:02	757.03	881	Detector bias heater off
	12:37:34	757.57	884	Detector bias heater on at level 3
	12:40:14	760.23	881	Detector bias heater off

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/17/90	12:40:46	760.77	852	Solar port heaters off
	12:56:46	776.77	851	Solar port heaters on
	12:57:18	777.30	821	Elevate to internal source (stow)
	13:13:18	793.30	811	Azimuth to 0°
End revised solar calibration sequence.				
01/17/90	13:38:54	818.90	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/17/90	15:03:10	903.17	882	Detector bias heater on at level 1
	15:05:50	905.83	881	Detector bias heater off
	15:06:22	906.37	883	Detector bias heater on at level 2
	15:09:02	909.03	881	Detector bias heater off
	15:09:34	909.57	884	Detector bias heater on at level 3
	15:12:14	912.23	881	Detector bias heater off
End postcalibration sequence.				
01/25/90	18:50:05			Yaw maneuver to $X$ -axis positive
Begin azimuth angle load commands for solar calibration.				
01/30/90	15:36:46	936.77	419	Address azimuth position A
	15:37:18	937.30	2xx	Data command, high byte
	15:38:22	938.37	1xx	Data command, low byte
End azimuth angle load commands ( $A = 74.93^\circ$ ).				
Begin revised preinternal calibration sequence.				
01/31/90	09:04:46	544.77	882	Detector bias heater on at level 1
	09:07:26	547.43	881	Detector bias heater off
	09:07:58	547.97	883	Detector bias heater on at level 2
	09:10:38	550.63	881	Detector bias heater off
	09:11:10	551.17	884	Detector bias heater on at level 3
	09:13:50	553.83	881	Detector bias heater off
	10:13:02	613.03	821	Elevate to internal source (stow)
	10:29:02	629.03	862	WFOV BB heater on at temp. 1
	10:45:02	645.03	872	MFOV BB heater on at temp. 1
	11:50:06	710.10	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/31/90	11:51:42	711.70	881	Detector bias heater off
	11:52:14	712.23	852	Solar port heaters off
	11:52:46	712.77	821	Elevate to internal source (stow)
	11:53:18	713.30	851	Solar port heaters on
	11:55:26	715.43	882	Detector bias heater on at level 1
	11:59:10	719.17	892	SWICS on at level 3
	12:02:22	722.37	881	Detector bias heater off
	12:06:06	726.10	862	WFOV BB heater on at temp. 1
	12:06:38	726.63	872	MFOV BB heater on at temp. 1
	12:07:42	727.70	891	SWICS off
	12:21:02	741.03	883	Detector bias heater on at level 2
	12:24:46	744.77	893	SWICS on at level 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/31/90	12:27:58	747.97	881	Detector bias heater off
	12:31:42	751.70	863	WFOV BB heater on at temp. 2
	12:32:14	752.23	873	MFOV BB heater on at temp. 2
	12:33:18	753.30	891	SWICS off
	12:46:38	766.63	884	Detector bias heater on at level 3
	12:50:22	770.37	894	SWICS on at level 1
	12:52:30	772.50	881	Detector bias heater off
	12:55:10	775.17	852	Solar port heaters off
	12:56:14	776.23	861	WFOV BB heater off
	12:56:46	776.77	871	MFOV BB heater off
	12:57:18	777.30	851	Solar port heaters on
	12:57:50	777.83	891	SWICS off
End internal calibration sequence.				
01/31/90	13:04:46	784.77	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
01/31/90	13:12:14	792.23	822	Elevate to solar ports (Sun)
	13:12:46	792.77	814	Azimuth to position A
	13:13:18	793.30	883	Detector bias heater on at level 2
	13:23:26	803.43	831	SMA shutter cycle on
	14:04:30	844.50	832	SMA shutter cycle off
	14:05:02	845.03	881	Detector bias heater off
	14:05:34	845.57	882	Detector bias heater on at level 1
	14:08:14	848.23	881	Detector bias heater off
	14:08:46	848.77	883	Detector bias heater on at level 2
	14:11:26	851.43	881	Detector bias heater off
	14:11:58	851.97	884	Detector bias heater on at level 3
	14:14:38	854.63	881	Detector bias heater off
	14:15:10	855.17	852	Solar port heaters off
	14:31:10	871.17	851	Solar port heaters on
	14:31:42	871.70	821	Elevate to internal source (stow)
	14:47:42	887.70	811	Azimuth to 0°
End revised solar calibration sequence.				
01/31/90	15:13:18	913.30	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/31/90	15:31:58	931.97	882	Detector bias heater on at level 1
	15:34:38	934.63	881	Detector bias heater off
	15:35:10	935.17	883	Detector bias heater on at level 2
	15:37:50	937.83	881	Detector bias heater off
	15:38:22	938.37	884	Detector bias heater on at level 3
	15:41:02	941.03	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/10/90	16:01:18	961.30	419	Address azimuth position A
	16:01:50	961.83	2xx	Data command, high byte

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/10/90	16:02:54	962.90	1xx	Data command, low byte
End azimuth angle load commands ( $A = 33.13^\circ$ ). Begin revised preinternal calibration sequence.				
02/11/90	02:50:22	170.37	882	Detector bias heater on at level 1
	02:53:02	173.03	881	Detector bias heater off
	02:53:34	173.57	883	Detector bias heater on at level 2
	02:56:14	176.23	881	Detector bias heater off
	02:56:46	176.77	884	Detector bias heater on at level 3
	02:59:26	179.43	881	Detector bias heater off
	03:58:38	238.63	821	Elevate to internal source (stow)
	04:14:38	254.63	862	WFOV BB heater on at temp. 1
	04:30:38	270.63	872	MFOV BB heater on at temp. 1
	05:35:42	335.70	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence. Begin internal calibration sequence.				
02/11/90	05:37:18	337.30	881	Detector bias heater off
	05:37:50	337.83	852	Solar port heaters off
	05:38:22	338.37	821	Elevate to internal source (stow)
	05:38:54	338.90	851	Solar port heaters on
	05:41:02	341.03	882	Detector bias heater on at level 1
	05:44:46	344.77	892	SWICS on at level 3
	05:47:58	347.97	881	Detector bias heater off
	05:51:42	351.70	862	WFOV BB heater on at temp. 1
	05:52:14	352.23	872	MFOV BB heater on at temp. 1
	05:53:18	353.30	891	SWICS off
	06:06:38	366.63	883	Detector bias heater on at level 2
	06:10:22	370.37	893	SWICS on at level 2
	06:13:34	373.57	881	Detector bias heater off
	06:17:18	377.30	863	WFOV BB heater on at temp. 2
	06:17:50	377.83	873	MFOV BB heater on at temp. 2
	06:18:54	378.90	891	SWICS off
	06:32:14	392.23	884	Detector bias heater on at level 3
	06:35:58	395.97	894	SWICS on at level 1
	06:38:06	398.10	881	Detector bias heater off
	06:40:46	400.77	852	Solar port heaters off
	06:41:50	401.83	861	WFOV BB heater off
	06:42:22	402.37	871	MFOV BB heater off
	06:42:54	402.90	851	Solar port heaters on
	06:43:26	403.43	891	SWICS off
End internal calibration sequence.				
02/11/90	06:50:22	410.37	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
02/11/90	06:57:50	417.83	822	Elevate to solar ports (Sun)
	06:58:22	418.37	814	Azimuth to position A
	06:58:54	418.90	883	Detector bias heater on at level 2



Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/11/90	07:09:02	429.03	831	SMA shutter cycle on
	07:50:06	470.10	832	SMA shutter cycle off
	07:50:38	470.63	881	Detector bias heater off
	07:51:10	471.17	882	Detector bias heater on at level 1
	07:53:50	473.83	881	Detector bias heater off
	07:54:22	474.37	883	Detector bias heater on at level 2
	07:57:02	477.03	881	Detector bias heater off
	07:57:34	477.57	884	Detector bias heater on at level 3
	08:00:14	480.23	881	Detector bias heater off
	08:00:46	480.77	852	Solar port heaters off
	08:16:46	496.77	851	Solar port heaters on
	08:17:18	497.30	821	Elevate to internal source (stow)
	08:33:18	513.30	811	Azimuth to 0°
End revised solar calibration sequence.				
02/11/90	08:58:54	538.90	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/11/90	09:17:34	557.57	882	Detector bias heater on at level 1
	09:20:14	560.23	881	Detector bias heater off
	09:20:46	560.77	883	Detector bias heater on at level 2
	09:23:26	563.43	881	Detector bias heater off
	09:23:58	563.97	884	Detector bias heater on at level 3
	09:26:38	566.63	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/23/90	01:17:34	77.57	419	Address azimuth position A
	01:18:06	78.10	2xx	Data command, high byte
	01:19:10	79.17	1xx	Data command, low byte
End azimuth angle load commands ( $A = 33.83^\circ$ ).				
Begin revised preinternal calibration sequence.				
02/23/90	03:28:46	208.77	882	Detector bias heater on at level 1
	03:31:26	211.43	881	Detector bias heater off
	03:31:58	211.97	883	Detector bias heater on at level 2
	03:34:38	214.63	881	Detector bias heater off
	03:35:10	215.17	884	Detector bias heater on at level 3
	03:37:50	217.83	881	Detector bias heater off
	04:37:02	277.03	821	Elevate to internal source (stow)
	04:53:02	293.03	862	WFOV BB heater on at temp. 1
	05:09:02	309.03	872	MFOV BB heater on at temp. 1
	06:14:06	374.10	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/23/90	06:15:42	375.70	881	Detector bias heater off
	06:16:14	376.23	852	Solar port heaters off
	06:16:46	376.77	821	Elevate to internal source (stow)
	06:17:18	377.30	851	Solar port heaters on

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/23/90	06:19:26	379.43	882	Detector bias heater on at level 1
	06:23:10	383.17	892	SWICS on at level 3
	06:26:22	386.37	881	Detector bias heater off
	06:30:06	390.10	862	WFOV BB heater on at temp. 1
	06:30:38	390.63	872	MFOV BB heater on at temp. 1
	06:31:42	391.70	891	SWICS off
	06:45:02	405.03	883	Detector bias heater on at level 2
	06:48:46	408.77	893	SWICS on at level 2
	06:51:58	411.97	881	Detector bias heater off
	06:55:42	415.70	863	WFOV BB heater on at temp. 2
	06:56:14	416.23	873	MFOV BB heater on at temp. 2
	06:57:18	417.30	891	SWICS off
	07:10:38	430.63	884	Detector bias heater on at level 3
	07:14:22	434.37	894	SWICS on at level 1
	07:16:30	436.50	881	Detector bias heater off
	07:19:10	439.17	852	Solar port heaters off
	07:20:14	440.23	861	WFOV BB heater off
	07:20:46	440.77	871	MFOV BB heater off
	07:21:18	441.30	851	Solar port heaters on
	07:21:50	441.83	891	SWICS off
End internal calibration sequence.				
02/23/90	07:28:46	448.77	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
02/23/90	07:36:14	456.23	822	Elevate to solar ports (Sun)
	07:36:46	456.77	814	Azimuth to position A
	07:37:18	457.30	883	Detector bias heater on at level 2
	07:47:26	467.43	831	SMA shutter cycle on
	08:28:30	508.50	832	SMA shutter cycle off
	08:29:02	509.03	881	Detector bias heater off
	08:29:34	509.57	882	Detector bias heater on at level 1
	08:32:14	512.23	881	Detector bias heater off
	08:32:46	512.77	883	Detector bias heater on at level 2
	08:35:26	515.43	881	Detector bias heater off
	08:35:58	515.97	884	Detector bias heater on at level 3
	08:38:38	518.63	881	Detector bias heater off
	08:39:10	519.17	852	Solar port heaters off
	08:55:10	535.17	851	Solar port heaters on
	08:55:42	535.70	821	Elevate to internal source (stow)
	09:11:42	551.70	811	Azimuth to 0°
End revised solar calibration sequence.				
02/23/90	09:37:18	577.30	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/23/90	09:55:58	595.97	882	Detector bias heater on at level 1
	09:58:38	598.63	881	Detector bias heater off
	09:59:10	599.17	883	Detector bias heater on at level 2

Table 9. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/23/90	10:01:50	601.83	881	Detector bias heater off
	10:02:22	602.37	884	Detector bias heater on at level 3
	10:05:02	605.03	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/27/90	17:49:02	1069.03	419	Address azimuth position A
	17:50:06	1070.10	2xx	Data command, high byte
	17:51:10	1071.17	1xx	Data command, low byte
End azimuth angle load commands ( $A = 55.89^\circ$ ).				
Begin revised preinternal calibration sequence.				
02/28/90	09:05:18	545.30	882	Detector bias heater on at level 1
	09:07:58	547.97	881	Detector bias heater off
	09:08:30	548.50	883	Detector bias heater on at level 2
	09:11:10	551.17	881	Detector bias heater off
	09:11:42	551.70	884	Detector bias heater on at level 3
	09:14:22	554.37	881	Detector bias heater off
	10:13:34	613.57	821	Elevate to internal source (stow)
	10:29:34	629.57	862	WFOV BB heater on at temp. 1
	10:45:34	645.57	872	MFOV BB heater on at temp. 1
	11:50:38	710.63	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/28/90	11:52:14	712.23	881	Detector bias heater off
	11:52:46	712.77	852	Solar port heaters off
	11:53:18	713.30	821	Elevate to internal source (stow)
	11:53:50	713.83	851	Solar port heaters on
	11:55:58	715.97	882	Detector bias heater on at level 1
	11:59:42	719.70	892	SWICS on at level 3
	12:02:54	722.90	881	Detector bias heater off
	12:06:38	726.63	862	WFOV BB heater on at temp. 1
	12:07:10	727.17	872	MFOV BB heater on at temp. 1
	12:08:14	728.23	891	SWICS off
	12:21:34	741.57	883	Detector bias heater on at level 2
	12:25:18	745.30	893	SWICS on at level 2
	12:28:30	748.50	881	Detector bias heater off
	12:32:14	752.23	863	WFOV BB heater on at temp. 2
	12:32:46	752.77	873	MFOV BB heater on at temp. 2
	12:33:50	753.83	891	SWICS off
	12:47:10	767.17	884	Detector bias heater on at level 3
	12:50:54	770.90	894	SWICS on at level 1
	12:53:02	773.03	881	Detector bias heater off
	12:55:42	775.70	852	Solar port heaters off
	12:56:46	776.77	861	WFOV BB heater off

Table 9. Concluded

(c) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/28/90	12:57:18	777.30	871	MFOV BB heater off
	12:57:50	777.83	851	Solar port heaters on
	12:58:22	778.37	891	SWICS off
End internal calibration sequence.				
02/28/90	13:05:18	785.30	823	Elevate to nadir (Earth)
Begin revised solar calibration sequence.				
02/28/90	13:12:46	792.77	822	Elevate to solar ports (Sun)
	13:13:18	793.30	814	Azimuth to position A
	13:13:50	793.83	883	Detector bias heater on at level 2
	13:23:58	803.97	831	SMA shutter cycle on
	14:05:02	845.03	832	SMA shutter cycle off
	14:05:34	845.57	881	Detector bias heater off
	14:06:06	846.10	882	Detector bias heater on at level 1
	14:08:46	848.77	881	Detector bias heater off
	14:09:18	849.30	883	Detector bias heater on at level 2
	14:11:58	851.97	881	Detector bias heater off
	14:12:30	852.50	884	Detector bias heater on at level 3
	14:15:10	855.17	881	Detector bias heater off
	14:15:42	855.70	852	Solar port heaters off
	14:31:42	871.70	851	Solar port heaters on
	14:32:14	872.23	821	Elevate to internal source (stow)
	14:48:14	888.23	811	Azimuth to 0°
End revised solar calibration sequence.				
02/28/90	15:13:50	913.83	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/28/90	15:32:30	932.50	882	Detector bias heater on at level 1
	15:35:10	935.17	881	Detector bias heater off
	15:35:42	935.70	883	Detector bias heater on at level 2
	15:38:22	938.37	881	Detector bias heater off
	15:38:54	938.90	884	Detector bias heater on at level 3
	15:41:34	941.57	881	Detector bias heater off
End postcalibration sequence.				

Table 10. Operational Commands Executed by Scanner Instrument on ERBS Spacecraft  
From February 1987 Through February 1990

(a) February 1987 through January 1988

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/04/87	11:54:56	714.93	8A1	Begin internal calibration
	11:55:28	715.47	897	SWICS on at level 1 modulated
	11:57:04	717.07	895	SWICS on at level 2 modulated
	11:58:40	718.67	893	SWICS on at level 3 modulated
	12:00:16	720.27	891	SWICS off
	12:03:28	723.47	897	SWICS on at level 1 modulated
	12:05:04	725.07	895	SWICS on at level 2 modulated
	12:06:40	726.67	893	SWICS on at level 3 modulated
	12:08:16	728.27	891	SWICS off
	12:27:28	747.47	897	SWICS on at level 1 modulated
	12:29:04	749.07	895	SWICS on at level 2 modulated
	12:30:40	750.67	893	SWICS on at level 3 modulated
	12:32:16	752.27	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
02/15/87	10:15:12	615.20	8A1	Begin internal calibration
	10:15:44	615.73	897	SWICS on at level 1 modulated
	10:17:20	617.33	895	SWICS on at level 2 modulated
	10:18:56	618.93	893	SWICS on at level 3 modulated
	10:20:32	620.53	891	SWICS off
	10:23:44	623.73	897	SWICS on at level 1 modulated
	10:25:20	625.33	895	SWICS on at level 2 modulated
	10:26:56	626.93	893	SWICS on at level 3 modulated
	10:28:32	628.53	891	SWICS off
	10:47:44	647.73	897	SWICS on at level 1 modulated
	10:49:20	649.33	895	SWICS on at level 2 modulated
	10:50:56	650.93	893	SWICS on at level 3 modulated
	10:52:32	652.53	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
02/15/87	14:56:16	896.27	419	Address azimuth position A
	15:00:00	900.00	2xx	Data command, high byte
	15:01:04	901.07	1xx	Data command, low byte
	15:02:08	902.13	41B	Address azimuth position B
	15:02:40	902.67	2xx	Data command, high byte
	15:03:44	903.73	1xx	Data command, low byte
End azimuth angle load commands (A = 179°, B = 145°).				
Begin Sun avoidance operation.				
02/15/87	22:08:16	1328.27	815	Azimuth to position B
02/25/87	14:50:24	890.40	813	Azimuth to 180°
End Sun avoidance operation.				

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/26/87	11:16:32	676.53	8A1	Begin internal calibration
	11:17:04	677.07	897	SWICS on at level 1 modulated
	11:18:40	678.67	895	SWICS on at level 2 modulated
	11:20:16	680.27	893	SWICS on at level 3 modulated
	11:21:52	681.87	891	SWICS off
	11:25:04	685.07	897	SWICS on at level 1 modulated
	11:26:40	686.67	895	SWICS on at level 2 modulated
	11:28:16	688.27	893	SWICS on at level 3 modulated
	11:29:52	689.87	891	SWICS off
	11:49:04	709.07	897	SWICS on at level 1 modulated
	11:50:40	710.67	895	SWICS on at level 2 modulated
	11:52:16	712.27	893	SWICS on at level 3 modulated
11:53:52	713.87	891	SWICS off	
End internal calibration sequence.				
Begin internal calibration sequence.				
03/04/87	10:49:20	649.33	8A1	Begin internal calibration
	10:49:52	649.87	897	SWICS on at level 1 modulated
	10:51:28	651.47	895	SWICS on at level 2 modulated
	10:53:04	653.07	893	SWICS on at level 3 modulated
	10:54:40	654.67	891	SWICS off
	10:57:52	657.87	897	SWICS on at level 1 modulated
	10:59:28	659.47	895	SWICS on at level 2 modulated
	11:01:04	661.07	893	SWICS on at level 3 modulated
	11:02:40	662.67	891	SWICS off
	11:21:52	681.87	897	SWICS on at level 1 modulated
	11:23:28	683.47	895	SWICS on at level 2 modulated
	11:25:04	685.07	893	SWICS on at level 3 modulated
11:26:40	686.67	891	SWICS off	
End internal calibration sequence.				
03/11/87	16:38:07			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
03/18/87	10:58:24	658.40	8A1	Begin internal calibration
	10:58:56	658.93	897	SWICS on at level 1 modulated
	11:00:32	660.53	895	SWICS on at level 2 modulated
	11:02:08	662.13	893	SWICS on at level 3 modulated
	11:03:44	663.73	891	SWICS off
	11:06:56	666.93	897	SWICS on at level 1 modulated
	11:08:32	668.53	895	SWICS on at level 2 modulated
	11:10:08	670.13	893	SWICS on at level 3 modulated
	11:11:44	671.73	891	SWICS off
	11:30:56	690.93	897	SWICS on at level 1 modulated
	11:32:32	692.53	895	SWICS on at level 2 modulated
	11:34:08	694.13	893	SWICS on at level 3 modulated

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/18/87	11:35:44	695.73	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/01/87	12:15:44	735.73	8A1	Begin internal calibration
	12:16:16	736.27	897	SWICS on at level 1 modulated
	12:17:52	737.87	895	SWICS on at level 2 modulated
	12:19:28	739.47	893	SWICS on at level 3 modulated
	12:21:04	741.07	891	SWICS off
	12:24:16	744.27	897	SWICS on at level 1 modulated
	12:25:52	745.87	895	SWICS on at level 2 modulated
	12:27:28	747.47	893	SWICS on at level 3 modulated
	12:29:04	749.07	891	SWICS off
	12:48:16	768.27	897	SWICS on at level 1 modulated
	12:49:52	769.87	895	SWICS on at level 2 modulated
	12:51:28	771.47	893	SWICS on at level 3 modulated
	12:53:04	773.07	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/15/87	11:13:52	673.87	8A1	Begin internal calibration
	11:14:24	674.40	897	SWICS on at level 1 modulated
	11:16:00	676.00	895	SWICS on at level 2 modulated
	11:17:36	677.60	893	SWICS on at level 3 modulated
	11:19:12	679.20	891	SWICS off
	11:22:24	682.40	897	SWICS on at level 1 modulated
	11:24:00	684.00	895	SWICS on at level 2 modulated
	11:25:36	685.60	893	SWICS on at level 3 modulated
	11:27:12	687.20	891	SWICS off
	11:46:24	706.40	897	SWICS on at level 1 modulated
	11:48:00	708.00	895	SWICS on at level 2 modulated
	11:49:36	709.60	893	SWICS on at level 3 modulated
	11:51:12	711.20	891	SWICS off
End internal calibration sequence.				
04/17/87	14:21:19			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
04/29/87	10:46:08	646.13	8A1	Begin internal calibration
	10:46:40	646.67	897	SWICS on at level 1 modulated
	10:48:16	648.27	895	SWICS on at level 2 modulated
	10:49:52	649.87	893	SWICS on at level 3 modulated
	10:51:28	651.47	891	SWICS off
	10:54:40	654.67	897	SWICS on at level 1 modulated
	10:56:16	656.27	895	SWICS on at level 2 modulated
	10:57:52	657.87	893	SWICS on at level 3 modulated
	10:59:28	659.47	891	SWICS off
	11:18:40	678.67	897	SWICS on at level 1 modulated
	11:20:16	680.27	895	SWICS on at level 2 modulated

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/29/87	11:21:52	681.87	893	SWICS on at level 3 modulated
	11:23:28	683.47	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/13/87	10:25:20	625.33	8A1	Begin internal calibration
	10:25:52	625.87	897	SWICS on at level 1 modulated
	10:27:28	627.47	895	SWICS on at level 2 modulated
	10:29:04	629.07	893	SWICS on at level 3 modulated
	10:30:40	630.67	891	SWICS off
	10:33:52	633.87	897	SWICS on at level 1 modulated
	10:35:28	635.47	895	SWICS on at level 2 modulated
	10:37:04	637.07	893	SWICS on at level 3 modulated
	10:38:40	638.67	891	SWICS off
	10:57:52	657.87	897	SWICS on at level 1 modulated
	10:59:28	659.47	895	SWICS on at level 2 modulated
	11:01:04	661.07	893	SWICS on at level 3 modulated
	11:02:40	662.67	891	SWICS off
End internal calibration sequence.				
05/21/87	14:45:19			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
05/27/87	10:35:28	635.47	8A1	Begin internal calibration
	10:36:00	636.00	897	SWICS on at level 1 modulated
	10:37:36	637.60	895	SWICS on at level 2 modulated
	10:39:12	639.20	893	SWICS on at level 3 modulated
	10:40:48	640.80	891	SWICS off
	10:44:00	644.00	897	SWICS on at level 1 modulated
	10:45:36	645.60	895	SWICS on at level 2 modulated
	10:47:12	647.20	893	SWICS on at level 3 modulated
	10:48:48	648.80	891	SWICS off
	11:08:00	668.00	897	SWICS on at level 1 modulated
	11:09:36	669.60	895	SWICS on at level 2 modulated
	11:11:12	671.20	893	SWICS on at level 3 modulated
	11:12:48	672.80	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
06/03/87	10:17:20	617.33	8A1	Begin internal calibration
	10:17:52	617.87	897	SWICS on at level 1 modulated
	10:19:28	619.47	895	SWICS on at level 2 modulated
	10:21:04	621.07	893	SWICS on at level 3 modulated
	10:22:40	622.67	891	SWICS off
	10:25:52	625.87	897	SWICS on at level 1 modulated
	10:27:28	627.47	895	SWICS on at level 2 modulated
	10:29:04	629.07	893	SWICS on at level 3 modulated
	10:30:40	630.67	891	SWICS off
	10:49:52	649.87	897	SWICS on at level 1 modulated



Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/03/87	10:51:28	651.47	895	SWICS on at level 2 modulated
	10:53:04	653.07	893	SWICS on at level 3 modulated
	10:54:40	654.67	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
06/03/87	13:55:28	835.47	419	Address azimuth position A
	13:56:00	836.00	2xx	Data command, high byte
	13:57:04	837.07	1xx	Data command, low byte
	13:58:08	838.13	41B	Address azimuth position B
	13:58:40	838.67	2xx	Data command, high byte
	13:59:44	839.73	1xx	Data command, low byte
End azimuth angle load commands (A = 179°, B = 145°).				
Begin Sun avoidance operation.				
06/03/87	21:24:32	1284.53	815	Azimuth to position B
06/17/87	18:15:11	1095.18	813	Azimuth to 180°
End Sun avoidance operation.				
Begin internal calibration sequence.				
06/18/87	10:30:08	630.13	8A1	Begin internal calibration
	10:30:40	630.67	897	SWICS on at level 1 modulated
	10:32:16	632.27	895	SWICS on at level 2 modulated
	10:33:52	633.87	893	SWICS on at level 3 modulated
	10:35:28	635.47	891	SWICS off
	10:38:40	638.67	897	SWICS on at level 1 modulated
	10:40:16	640.27	895	SWICS on at level 2 modulated
	10:41:52	641.87	893	SWICS on at level 3 modulated
	10:43:28	643.47	891	SWICS off
	11:02:40	662.67	897	SWICS on at level 1 modulated
	11:04:16	664.27	895	SWICS on at level 2 modulated
	11:05:52	665.87	893	SWICS on at level 3 modulated
	11:07:28	667.47	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
06/24/87	11:41:36	701.60	8A1	Begin internal calibration
	11:42:08	702.13	897	SWICS on at level 1 modulated
	11:43:44	703.73	895	SWICS on at level 2 modulated
	11:45:20	705.33	893	SWICS on at level 3 modulated
	11:46:56	706.93	891	SWICS off
	11:50:08	710.13	897	SWICS on at level 1 modulated
	11:51:44	711.73	895	SWICS on at level 2 modulated
	11:53:20	713.33	893	SWICS on at level 3 modulated
	11:54:56	714.93	891	SWICS off
	12:14:08	734.13	897	SWICS on at level 1 modulated
	12:15:44	735.73	895	SWICS on at level 2 modulated

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/24/87	12:17:20	737.33	893	SWICS on at level 3 modulated
	12:18:56	738.93	891	SWICS off
End internal calibration sequence.				
07/02/87	15:16:15	1324.53	821	Yaw maneuver attempted; unsuccessful
	22:04:32			Scan to stow
	22:05:20			Instrument power off
07/03/87	08:10:00	1036.53	822	Instrument power on <sup>a</sup>
	12:04:00			Pulse load bus B power on <sup>a</sup>
	15:30:07			Yaw maneuver to <i>X</i> -axis positive
	17:16:31			Normal scan mode
Begin internal calibration sequence.				
07/08/87	10:29:04	629.07	8A1	Begin internal calibration
	10:29:36	629.60	897	SWICS on at level 1 modulated
	10:31:12	631.20	895	SWICS on at level 2 modulated
	10:32:48	632.80	893	SWICS on at level 3 modulated
	10:34:24	634.40	891	SWICS off
	10:37:36	637.60	897	SWICS on at level 1 modulated
	10:39:12	639.20	895	SWICS on at level 2 modulated
	10:40:48	640.80	893	SWICS on at level 3 modulated
	10:42:24	642.40	891	SWICS off
	11:01:36	661.60	897	SWICS on at level 1 modulated
	11:03:12	663.20	895	SWICS on at level 2 modulated
	11:04:48	664.80	893	SWICS on at level 3 modulated
	11:06:24	666.40	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
07/22/87	11:46:56	706.93	8A1	Begin internal calibration
	11:47:28	707.47	897	SWICS on at level 1 modulated
	11:49:04	709.07	895	SWICS on at level 2 modulated
	11:50:40	710.67	893	SWICS on at level 3 modulated
	11:52:16	712.27	891	SWICS off
	11:55:28	715.47	897	SWICS on at level 1 modulated
	11:57:04	717.07	895	SWICS on at level 2 modulated
	11:58:40	718.67	893	SWICS on at level 3 modulated
	12:00:16	720.27	891	SWICS off
	12:19:28	739.47	897	SWICS on at level 1 modulated
	12:21:04	741.07	895	SWICS on at level 2 modulated
	12:22:40	742.67	893	SWICS on at level 3 modulated
	12:24:16	744.27	891	SWICS off
End internal calibration sequence.				
07/31/87	14:44:15			Yaw maneuver to <i>X</i> -axis negative

<sup>a</sup>Approximate time of instrument power on according to GSFC documentation; no data were received until 12:09 UT on July 3, 1987.

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
08/05/87	10:24:48	624.80	8A1	Begin internal calibration
	10:25:20	625.33	897	SWICS on at level 1 modulated
	10:26:56	626.93	895	SWICS on at level 2 modulated
	10:28:32	628.53	893	SWICS on at level 3 modulated
	10:30:08	630.13	891	SWICS off
	10:33:20	633.33	897	SWICS on at level 1 modulated
	10:34:56	634.93	895	SWICS on at level 2 modulated
	10:36:32	636.53	893	SWICS on at level 3 modulated
	10:38:08	638.13	891	SWICS off
	10:57:20	657.33	897	SWICS on at level 1 modulated
	10:58:56	658.93	895	SWICS on at level 2 modulated
	11:00:32	660.53	893	SWICS on at level 3 modulated
	11:02:08	662.13	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
08/12/87	06:55:44	415.73	8A1	Begin internal calibration
	06:56:16	416.27	897	SWICS on at level 1 modulated
	06:57:52	417.87	895	SWICS on at level 2 modulated
	06:59:28	419.47	893	SWICS on at level 3 modulated
	07:01:04	421.07	891	SWICS off
	07:04:16	424.27	897	SWICS on at level 1 modulated
	07:05:52	425.87	895	SWICS on at level 2 modulated
	07:07:28	427.47	893	SWICS on at level 3 modulated
	07:09:04	429.07	891	SWICS off
	07:28:16	448.27	897	SWICS on at level 1 modulated
	07:29:52	449.87	895	SWICS on at level 2 modulated
	07:31:28	451.47	893	SWICS on at level 3 modulated
	07:33:04	453.07	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
08/17/87	06:18:24	378.40	8A1	Begin internal calibration
	06:18:56	378.93	897	SWICS on at level 1 modulated
	06:20:32	380.53	895	SWICS on at level 2 modulated
	06:22:08	382.13	893	SWICS on at level 3 modulated
	06:23:44	383.73	891	SWICS off
	06:26:56	386.93	897	SWICS on at level 1 modulated
	06:28:32	388.53	895	SWICS on at level 2 modulated
	06:30:08	390.13	893	SWICS on at level 3 modulated
	06:31:44	391.73	891	SWICS off
	06:50:56	410.93	897	SWICS on at level 1 modulated
	06:52:32	412.53	895	SWICS on at level 2 modulated
	06:54:08	414.13	893	SWICS on at level 3 modulated
	06:55:44	415.73	891	SWICS off
End internal calibration sequence.				

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description	
	hr:min:sec	Minutes of day			
Begin azimuth angle load commands for Sun avoidance angles.					
08/17/87	11:27:44	687.73	419	Address azimuth position A	
	11:28:48	688.80	2xx	Data command, high byte	
	11:30:24	690.40	1xx	Data command, low byte	
	11:31:28	691.47	41B	Address azimuth position B	
	11:32:00	692.00	2xx	Data command, high byte	
	11:33:04	693.07	1xx	Data command, low byte	
End azimuth angle load commands (A = 179°, B = 145°).					
Begin Sun avoidance operation.					
08/17/87	19:02:08	1142.13	815	Azimuth to position B	
08/27/87	14:49:19	889.32	813	Azimuth to 180°	
End Sun avoidance operation.					
Begin internal calibration sequence.					
08/28/87	12:03:28	723.47	8A1	Begin internal calibration	
	12:04:00	724.00	897	SWICS on at level 1 modulated	
	12:05:36	725.60	895	SWICS on at level 2 modulated	
	12:07:12	727.20	893	SWICS on at level 3 modulated	
	12:08:48	728.80	891	SWICS off	
	12:12:00	732.00	897	SWICS on at level 1 modulated	
	12:13:36	733.60	895	SWICS on at level 2 modulated	
	12:15:12	735.20	893	SWICS on at level 3 modulated	
	12:16:48	736.80	891	SWICS off	
	12:36:00	756.00	897	SWICS on at level 1 modulated	
	12:37:36	757.60	895	SWICS on at level 2 modulated	
	12:39:12	759.20	893	SWICS on at level 3 modulated	
	12:40:48	760.80	891	SWICS off	
End internal calibration sequence.					
Begin internal calibration sequence.					
09/02/87	11:28:48	688.80	8A1	Begin internal calibration	
	11:29:20	689.33	897	SWICS on at level 1 modulated	
	11:30:56	690.93	895	SWICS on at level 2 modulated	
	11:32:32	692.53	893	SWICS on at level 3 modulated	
	11:34:08	694.13	891	SWICS off	
	11:37:20	697.33	897	SWICS on at level 1 modulated	
	11:38:56	698.93	895	SWICS on at level 2 modulated	
	11:40:32	700.53	893	SWICS on at level 3 modulated	
	11:42:08	702.13	891	SWICS off	
	12:01:20	721.33	897	SWICS on at level 1 modulated	
	12:02:56	722.93	895	SWICS on at level 2 modulated	
	12:04:32	724.53	893	SWICS on at level 3 modulated	
	12:06:08	726.13	891	SWICS off	
	End internal calibration sequence.				

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
09/09/87	11:14:24	674.40	8A1	Begin internal calibration
	11:14:56	674.93	897	SWICS on at level 1 modulated
	11:16:32	676.53	895	SWICS on at level 2 modulated
	11:18:08	678.13	893	SWICS on at level 3 modulated
	11:19:44	679.73	891	SWICS off
	11:22:56	682.93	897	SWICS on at level 1 modulated
	11:24:32	684.53	895	SWICS on at level 2 modulated
	11:26:08	686.13	893	SWICS on at level 3 modulated
	11:27:44	687.73	891	SWICS off
	11:46:56	706.93	897	SWICS on at level 1 modulated
	11:48:32	708.53	895	SWICS on at level 2 modulated
	11:50:08	710.13	893	SWICS on at level 3 modulated
	11:51:44	711.73	891	SWICS off
End internal calibration sequence.				
09/10/87	13:20:15			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
09/16/87	11:54:24	714.40	8A1	Begin internal calibration
	11:54:56	714.93	897	SWICS on at level 1 modulated
	11:56:32	716.53	895	SWICS on at level 2 modulated
	11:58:08	718.13	893	SWICS on at level 3 modulated
	11:59:44	719.73	891	SWICS off
	12:02:56	722.93	897	SWICS on at level 1 modulated
	12:04:32	724.53	895	SWICS on at level 2 modulated
	12:06:08	726.13	893	SWICS on at level 3 modulated
	12:07:44	727.73	891	SWICS off
	12:26:56	746.93	897	SWICS on at level 1 modulated
	12:28:32	748.53	895	SWICS on at level 2 modulated
	12:30:08	750.13	893	SWICS on at level 3 modulated
	12:31:44	751.73	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
09/30/87	10:03:28	603.47	8A1	Begin internal calibration
	10:04:00	604.00	897	SWICS on at level 1 modulated
	10:05:36	605.60	895	SWICS on at level 2 modulated
	10:07:12	607.20	893	SWICS on at level 3 modulated
	10:08:48	608.80	891	SWICS off
	10:12:00	612.00	897	SWICS on at level 1 modulated
	10:13:36	613.60	895	SWICS on at level 2 modulated
	10:15:12	615.20	893	SWICS on at level 3 modulated
	10:16:48	616.80	891	SWICS off
	10:36:00	636.00	897	SWICS on at level 1 modulated
	10:37:36	637.60	895	SWICS on at level 2 modulated

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/30/87	10:39:12	639.20	893	SWICS on at level 3 modulated
	10:40:48	640.80	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/14/87	11:17:04	677.07	8A1	Begin internal calibration
	11:17:36	677.60	897	SWICS on at level 1 modulated
	11:19:12	679.20	895	SWICS on at level 2 modulated
	11:20:48	680.80	893	SWICS on at level 3 modulated
	11:22:24	682.40	891	SWICS off
	11:25:36	685.60	897	SWICS on at level 1 modulated
	11:27:12	687.20	895	SWICS on at level 2 modulated
	11:28:48	688.80	893	SWICS on at level 3 modulated
	11:30:24	690.40	891	SWICS off
	11:49:36	709.60	897	SWICS on at level 1 modulated
	11:51:12	711.20	895	SWICS on at level 2 modulated
	11:52:48	712.80	893	SWICS on at level 3 modulated
	11:54:24	714.40	891	SWICS off
End internal calibration sequence.				
10/16/87	14:25:19			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
10/28/87	09:54:56	594.93	8A1	Begin internal calibration
	09:55:28	595.47	897	SWICS on at level 1 modulated
	09:57:04	597.07	895	SWICS on at level 2 modulated
	09:58:40	598.67	893	SWICS on at level 3 modulated
	10:00:16	600.27	891	SWICS off
	10:03:28	603.47	897	SWICS on at level 1 modulated
	10:05:04	605.07	895	SWICS on at level 2 modulated
	10:06:40	606.67	893	SWICS on at level 3 modulated
	10:08:16	608.27	891	SWICS off
	10:27:28	627.47	897	SWICS on at level 1 modulated
	10:29:04	629.07	895	SWICS on at level 2 modulated
	10:30:40	630.67	893	SWICS on at level 3 modulated
	10:32:16	632.27	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
11/11/87	11:12:48	672.80	8A1	Begin internal calibration
	11:13:20	673.33	897	SWICS on at level 1 modulated
	11:14:56	674.93	895	SWICS on at level 2 modulated
	11:16:32	676.53	893	SWICS on at level 3 modulated
	11:18:08	678.13	891	SWICS off
	11:21:20	681.33	897	SWICS on at level 1 modulated
	11:22:56	682.93	895	SWICS on at level 2 modulated
	11:24:32	684.53	893	SWICS on at level 3 modulated
	11:26:08	686.13	891	SWICS off
	11:45:20	705.33	897	SWICS on at level 1 modulated

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/11/87	11:46:56	706.93	895	SWICS on at level 2 modulated
	11:48:32	708.53	893	SWICS on at level 3 modulated
	11:50:08	710.13	891	SWICS off
End internal calibration sequence.				
11/19/87	13:15:11			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
11/25/87	10:02:56	602.93	8A1	Begin internal calibration
	10:03:28	603.47	897	SWICS on at level 1 modulated
	10:05:04	605.07	895	SWICS on at level 2 modulated
	10:06:40	606.67	893	SWICS on at level 3 modulated
	10:08:16	608.27	891	SWICS off
	10:11:28	611.47	897	SWICS on at level 1 modulated
	10:13:04	613.07	895	SWICS on at level 2 modulated
	10:14:40	614.67	893	SWICS on at level 3 modulated
	10:16:16	616.27	891	SWICS off
	10:35:28	635.47	897	SWICS on at level 1 modulated
	10:37:04	637.07	895	SWICS on at level 2 modulated
	10:38:40	638.67	893	SWICS on at level 3 modulated
	10:40:16	640.27	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
12/02/87	19:41:04	1181.07	419	Address azimuth position A
	19:41:36	1181.60	2xx	Data command, high byte
	19:42:40	1182.67	1xx	Data command, low byte
	19:43:44	1183.73	41B	Address azimuth position B
	19:44:48	1184.80	2xx	Data command, high byte
	19:45:52	1185.87	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ).				
Begin internal calibration sequence.				
12/03/87	01:57:36	117.60	8A1	Begin internal calibration
	01:58:08	118.13	897	SWICS on at level 1 modulated
	01:59:44	119.73	895	SWICS on at level 2 modulated
	02:01:20	121.33	893	SWICS on at level 3 modulated
	02:02:56	122.93	891	SWICS off
	02:06:08	126.13	897	SWICS on at level 1 modulated
	02:07:44	127.73	895	SWICS on at level 2 modulated
	02:09:20	129.33	893	SWICS on at level 3 modulated
	02:10:56	130.93	891	SWICS off
	02:30:08	150.13	897	SWICS on at level 1 modulated
	02:31:44	151.73	895	SWICS on at level 2 modulated
	02:33:20	153.33	893	SWICS on at level 3 modulated
	02:34:56	154.93	891	SWICS off
End internal calibration sequence.				
Begin Sun avoidance operation.				
12/03/87	15:17:04	917.07	815	Azimuth to position B

Table 10. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/17/87	17:03:12	1023.20	813	Azimuth to 180°
End Sun avoidance operation. Begin internal calibration sequence.				
12/18/87	10:16:16	616.27	8A1	Begin internal calibration
	10:16:48	616.80	897	SWICS on at level 1 modulated
	10:18:24	618.40	895	SWICS on at level 2 modulated
	10:20:00	620.00	893	SWICS on at level 3 modulated
	10:21:36	621.60	891	SWICS off
	10:24:48	624.80	897	SWICS on at level 1 modulated
	10:26:24	626.40	895	SWICS on at level 2 modulated
	10:28:00	628.00	893	SWICS on at level 3 modulated
	10:29:36	629.60	891	SWICS off
	10:48:48	648.80	897	SWICS on at level 1 modulated
	10:50:24	650.40	895	SWICS on at level 2 modulated
	10:52:00	652.00	893	SWICS on at level 3 modulated
	10:53:36	653.60	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
12/23/87	11:12:48	672.80	8A1	Begin internal calibration
	11:13:20	673.33	897	SWICS on at level 1 modulated
	11:14:56	674.93	895	SWICS on at level 2 modulated
	11:16:32	676.53	893	SWICS on at level 3 modulated
	11:18:08	678.13	891	SWICS off
	11:21:20	681.33	897	SWICS on at level 1 modulated
	11:22:56	682.93	895	SWICS on at level 2 modulated
	11:24:32	684.53	893	SWICS on at level 3 modulated
	11:26:08	686.13	891	SWICS off
	11:45:20	705.33	897	SWICS on at level 1 modulated
	11:46:56	706.93	895	SWICS on at level 2 modulated
	11:48:32	708.53	893	SWICS on at level 3 modulated
	11:50:08	710.13	891	SWICS off
End internal calibration sequence.				
12/30/87	15:18:07			Yaw maneuver to <i>X</i> -axis negative
Begin internal calibration sequence.				
01/06/88	11:23:59	683.98	8A1	Begin internal calibration
	11:24:31	684.52	897	SWICS on at level 1 modulated
	11:26:07	686.12	895	SWICS on at level 2 modulated
	11:27:43	687.72	893	SWICS on at level 3 modulated
	11:29:19	689.32	891	SWICS off
	11:32:31	692.52	897	SWICS on at level 1 modulated
	11:34:07	694.12	895	SWICS on at level 2 modulated
	11:35:43	695.72	893	SWICS on at level 3 modulated
	11:37:19	697.32	891	SWICS off



Table 10. Continued

(a) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/06/88	11:56:31	716.52	897	SWICS on at level 1 modulated
	11:58:07	718.12	895	SWICS on at level 2 modulated
	11:59:43	719.72	893	SWICS on at level 3 modulated
	12:01:19	721.32	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
01/20/88	11:02:39	662.65	8A1	Begin internal calibration
	11:03:11	663.18	897	SWICS on at level 1 modulated
	11:04:47	664.78	895	SWICS on at level 2 modulated
	11:06:23	666.38	893	SWICS on at level 3 modulated
	11:07:59	667.98	891	SWICS off
	11:11:11	671.18	897	SWICS on at level 1 modulated
	11:12:47	672.78	895	SWICS on at level 2 modulated
	11:14:23	674.38	893	SWICS on at level 3 modulated
	11:15:59	675.98	891	SWICS off
	11:35:11	695.18	897	SWICS on at level 1 modulated
	11:36:47	696.78	895	SWICS on at level 2 modulated
	11:38:23	698.38	893	SWICS on at level 3 modulated
	11:39:59	699.98	891	SWICS off
End internal calibration sequence.				
01/29/88	13:16:14			Yaw maneuver to $X$ -axis positive

Table 10. Continued

(b) February 1988 through January 1989

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/03/88	14:44:31	884.52	8A1	Begin internal calibration
	14:45:03	885.05	897	SWICS on at level 1 modulated
	14:46:39	886.65	895	SWICS on at level 2 modulated
	14:48:15	888.25	893	SWICS on at level 3 modulated
	14:49:51	889.85	891	SWICS off
	14:53:03	893.05	897	SWICS on at level 1 modulated
	14:54:39	894.65	895	SWICS on at level 2 modulated
	14:56:15	896.25	893	SWICS on at level 3 modulated
	14:57:51	897.85	891	SWICS off
	15:17:03	917.05	897	SWICS on at level 1 modulated
	15:18:39	918.65	895	SWICS on at level 2 modulated
	15:20:15	920.25	893	SWICS on at level 3 modulated
	15:21:51	921.85	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
02/13/88	16:39:11	999.18	419	Address azimuth position A
	16:39:43	999.72	2xx	Data command, high byte
	16:40:47	1000.78	1xx	Data command, low byte
	16:42:23	1002.38	41B	Address azimuth position B
	16:43:27	1003.45	2xx	Data command, high byte
	16:44:31	1004.52	1xx	Data command, low byte
End azimuth angle load commands (A = 179°, B = 145°).				
Begin internal calibration sequence.				
02/14/88	00:50:23	50.38	8A1	Begin internal calibration
	00:50:55	50.92	897	SWICS on at level 1 modulated
	00:52:31	52.52	895	SWICS on at level 2 modulated
	00:54:07	54.12	893	SWICS on at level 3 modulated
	00:55:43	55.72	891	SWICS off
	00:58:55	58.92	897	SWICS on at level 1 modulated
	01:00:31	60.52	895	SWICS on at level 2 modulated
	01:02:07	62.12	893	SWICS on at level 3 modulated
	01:03:43	63.72	891	SWICS off
	01:22:55	82.92	897	SWICS on at level 1 modulated
	01:24:31	84.52	895	SWICS on at level 2 modulated
	01:26:07	86.12	893	SWICS on at level 3 modulated
	01:27:43	87.72	891	SWICS off
End internal calibration sequence.				
Begin Sun avoidance operation.				
02/14/88	15:48:31	948.52	815	Azimuth to position B
02/24/88	18:10:23	1090.38	813	Azimuth to 180°
End Sun avoidance operation.				

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/25/88	09:47:27	587.45	8A1	Begin internal calibration
	09:47:59	587.98	897	SWICS on at level 1 modulated
	09:49:35	589.58	895	SWICS on at level 2 modulated
	09:51:11	591.18	893	SWICS on at level 3 modulated
	09:52:47	592.78	891	SWICS off
	09:55:59	595.98	897	SWICS on at level 1 modulated
	09:57:35	597.58	895	SWICS on at level 2 modulated
	09:59:11	599.18	893	SWICS on at level 3 modulated
	10:00:47	600.78	891	SWICS off
	10:19:59	619.98	897	SWICS on at level 1 modulated
	10:21:35	621.58	895	SWICS on at level 2 modulated
	10:23:11	623.18	893	SWICS on at level 3 modulated
	10:24:47	624.78	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/02/88	10:57:51	657.85	8A1	Begin internal calibration
	10:58:23	658.38	897	SWICS on at level 1 modulated
	10:59:59	659.98	895	SWICS on at level 2 modulated
	11:01:35	661.58	893	SWICS on at level 3 modulated
	11:03:11	663.18	891	SWICS off
	11:06:23	666.38	897	SWICS on at level 1 modulated
	11:07:59	667.98	895	SWICS on at level 2 modulated
	11:09:35	669.58	893	SWICS on at level 3 modulated
	11:11:11	671.18	891	SWICS off
	11:30:23	690.38	897	SWICS on at level 1 modulated
	11:31:59	691.98	895	SWICS on at level 2 modulated
	11:33:35	693.58	893	SWICS on at level 3 modulated
	11:35:11	695.18	891	SWICS off
End internal calibration sequence.				
03/09/88	15:04:14			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
03/16/88	09:30:55	570.92	8A1	Begin internal calibration
	09:31:27	571.45	897	SWICS on at level 1 modulated
	09:33:03	573.05	895	SWICS on at level 2 modulated
	09:34:39	574.65	893	SWICS on at level 3 modulated
	09:36:15	576.25	891	SWICS off
	09:39:27	579.45	897	SWICS on at level 1 modulated
	09:41:03	581.05	895	SWICS on at level 2 modulated
	09:42:39	582.65	893	SWICS on at level 3 modulated
	09:44:15	584.25	891	SWICS off
	10:03:27	603.45	897	SWICS on at level 1 modulated
	10:05:03	605.05	895	SWICS on at level 2 modulated
	10:06:39	606.65	893	SWICS on at level 3 modulated

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/16/88	10:08:15	608.25	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/30/88	12:25:19	745.32	8A1	Begin internal calibration
	12:25:51	745.85	897	SWICS on at level 1 modulated
	12:27:27	747.45	895	SWICS on at level 2 modulated
	12:29:03	749.05	893	SWICS on at level 3 modulated
	12:30:39	750.65	891	SWICS off
	12:33:51	753.85	897	SWICS on at level 1 modulated
	12:35:27	755.45	895	SWICS on at level 2 modulated
	12:37:03	757.05	893	SWICS on at level 3 modulated
	12:38:39	758.65	891	SWICS off
	12:57:51	777.85	897	SWICS on at level 1 modulated
	12:59:27	779.45	895	SWICS on at level 2 modulated
	13:01:03	781.05	893	SWICS on at level 3 modulated
	13:02:39	782.65	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/13/88	10:29:35	629.58	8A1	Begin internal calibration
	10:30:07	630.12	897	SWICS on at level 1 modulated
	10:31:43	631.72	895	SWICS on at level 2 modulated
	10:33:19	633.32	893	SWICS on at level 3 modulated
	10:34:55	634.92	891	SWICS off
	10:38:07	638.12	897	SWICS on at level 1 modulated
	10:39:43	639.72	895	SWICS on at level 2 modulated
	10:41:19	641.32	893	SWICS on at level 3 modulated
	10:42:55	642.92	891	SWICS off
	11:02:07	662.12	897	SWICS on at level 1 modulated
	11:03:43	663.72	895	SWICS on at level 2 modulated
	11:05:19	665.32	893	SWICS on at level 3 modulated
	11:06:55	666.92	891	SWICS off
End internal calibration sequence.				
04/15/88	14:32:14			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
04/27/88	10:51:27	651.45	8A1	Begin internal calibration
	10:51:59	651.98	897	SWICS on at level 1 modulated
	10:53:35	653.58	895	SWICS on at level 2 modulated
	10:55:11	655.18	893	SWICS on at level 3 modulated
	10:56:47	656.78	891	SWICS off
	10:59:59	659.98	897	SWICS on at level 1 modulated
	11:01:35	661.58	895	SWICS on at level 2 modulated
	11:03:11	663.18	893	SWICS on at level 3 modulated
	11:04:47	664.78	891	SWICS off
	11:23:59	683.98	897	SWICS on at level 1 modulated
	11:25:35	685.58	895	SWICS on at level 2 modulated

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/27/88	11:27:11	687.18	893	SWICS on at level 3 modulated
	11:28:47	688.78	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/11/88	10:31:11	631.18	8A1	Begin internal calibration
	10:31:43	631.72	897	SWICS on at level 1 modulated
	10:33:19	633.32	895	SWICS on at level 2 modulated
	10:34:55	634.92	893	SWICS on at level 3 modulated
	10:36:31	636.52	891	SWICS off
	10:39:43	639.72	897	SWICS on at level 1 modulated
	10:41:19	641.32	895	SWICS on at level 2 modulated
	10:42:55	642.92	893	SWICS on at level 3 modulated
	10:44:31	644.52	891	SWICS off
	11:03:43	663.72	897	SWICS on at level 1 modulated
	11:05:19	665.32	895	SWICS on at level 2 modulated
	11:06:55	666.92	893	SWICS on at level 3 modulated
	11:08:31	668.52	891	SWICS off
End internal calibration sequence.				
05/18/88	14:45:18			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
05/25/88	12:18:23	738.38	8A1	Begin internal calibration
	12:18:55	738.92	897	SWICS on at level 1 modulated
	12:20:31	740.52	895	SWICS on at level 2 modulated
	12:22:07	742.12	893	SWICS on at level 3 modulated
	12:23:43	743.72	891	SWICS off
	12:26:55	746.92	897	SWICS on at level 1 modulated
	12:28:31	748.52	895	SWICS on at level 2 modulated
	12:30:07	750.12	893	SWICS on at level 3 modulated
	12:31:43	751.72	891	SWICS off
	12:50:55	770.92	897	SWICS on at level 1 modulated
	12:52:31	772.52	895	SWICS on at level 2 modulated
	12:54:07	774.12	893	SWICS on at level 3 modulated
	12:55:43	775.72	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
06/01/88	12:34:23	754.38	419	Address azimuth position A
	12:35:27	755.45	2xx	Data command, high byte
	12:36:31	756.52	1xx	Data command, low byte
	12:37:35	757.58	41B	Address azimuth position B
	12:38:39	758.65	2xx	Data command, high byte
	12:39:43	759.72	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ).				
Begin internal calibration sequence.				
06/02/88	04:07:43	247.72	8A1	Begin internal calibration
	04:08:15	248.25	897	SWICS on at level 1 modulated

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/02/88	04:09:51	249.85	895	SWICS on at level 2 modulated
	04:11:27	251.45	893	SWICS on at level 3 modulated
	04:13:03	253.05	891	SWICS off
	04:16:15	256.25	897	SWICS on at level 1 modulated
	04:17:51	257.85	895	SWICS on at level 2 modulated
	04:19:27	259.45	893	SWICS on at level 3 modulated
	04:21:03	261.05	891	SWICS off
	04:40:15	280.25	897	SWICS on at level 1 modulated
	04:41:51	281.85	895	SWICS on at level 2 modulated
	04:43:27	283.45	893	SWICS on at level 3 modulated
	04:45:03	285.05	891	SWICS off
End internal calibration sequence.				
Begin Sun avoidance operation.				
06/02/88	18:53:03	1133.05	815	Azimuth to position B
Unsuccessful azimuth rotation; try again.				
Begin azimuth angle load commands for Sun avoidance angles.				
06/03/88	14:52:31	892.52	419	Address azimuth position A
	14:53:35	893.58	2xx	Data command, high byte
	14:54:39	894.65	1xx	Data command, low byte
	14:55:43	895.72	41B	Address azimuth position B
	14:56:15	896.25	2xx	Data command, high byte
	14:57:19	897.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ).				
Try Sun avoidance operation again.				
06/03/88	18:45:35	1125.58	811	Azimuth to $0^\circ$
	18:51:27	1131.45	815	Azimuth to position B
06/16/88	10:38:07	638.12	813	Azimuth to $180^\circ$
End Sun avoidance operation.				
Begin internal calibration sequence.				
06/17/88	10:48:47	648.78	8A1	Begin internal calibration
	10:49:19	649.32	897	SWICS on at level 1 modulated
	10:50:55	650.92	895	SWICS on at level 2 modulated
	10:52:31	652.52	893	SWICS on at level 3 modulated
	10:54:07	654.12	891	SWICS off
	10:57:19	657.32	897	SWICS on at level 1 modulated
	10:58:55	658.92	895	SWICS on at level 2 modulated
	11:00:31	660.52	893	SWICS on at level 3 modulated
	11:02:07	662.12	891	SWICS off
	11:21:19	681.32	897	SWICS on at level 1 modulated
	11:22:55	682.92	895	SWICS on at level 2 modulated
	11:24:31	684.52	893	SWICS on at level 3 modulated
	11:26:07	686.12	891	SWICS off
End internal calibration sequence.				

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
06/22/88	11:47:59	707.98	8A1	Begin internal calibration
	11:48:31	708.52	897	SWICS on at level 1 modulated
	11:50:07	710.12	895	SWICS on at level 2 modulated
	11:51:43	711.72	893	SWICS on at level 3 modulated
	11:53:19	713.32	891	SWICS off
	11:56:31	716.52	897	SWICS on at level 1 modulated
	11:58:07	718.12	895	SWICS on at level 2 modulated
	11:59:43	719.72	893	SWICS on at level 3 modulated
	12:01:19	721.32	891	SWICS off
	12:20:31	740.52	897	SWICS on at level 1 modulated
	12:22:07	742.12	895	SWICS on at level 2 modulated
	12:23:43	743.72	893	SWICS on at level 3 modulated
	12:25:19	745.32	891	SWICS off
End internal calibration sequence.				
06/29/88	15:21:18			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
07/06/88	10:34:55	634.92	8A1	Begin internal calibration
	10:35:27	635.45	897	SWICS on at level 1 modulated
	10:37:03	637.05	895	SWICS on at level 2 modulated
	10:38:39	638.65	893	SWICS on at level 3 modulated
	10:40:15	640.25	891	SWICS off
	10:43:27	643.45	897	SWICS on at level 1 modulated
	10:45:03	645.05	895	SWICS on at level 2 modulated
	10:46:39	646.65	893	SWICS on at level 3 modulated
	10:48:15	648.25	891	SWICS off
	11:07:27	667.45	897	SWICS on at level 1 modulated
	11:09:03	669.05	895	SWICS on at level 2 modulated
	11:10:39	670.65	893	SWICS on at level 3 modulated
	11:12:15	672.25	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
07/20/88	11:49:35	709.58	8A1	Begin internal calibration
	11:50:07	710.12	897	SWICS on at level 1 modulated
	11:51:43	711.72	895	SWICS on at level 2 modulated
	11:53:19	713.32	893	SWICS on at level 3 modulated
	11:54:55	714.92	891	SWICS off
	11:58:07	718.12	897	SWICS on at level 1 modulated
	11:59:43	719.72	895	SWICS on at level 2 modulated
	12:01:19	721.32	893	SWICS on at level 3 modulated
	12:02:55	722.92	891	SWICS off
	12:22:07	742.12	897	SWICS on at level 1 modulated
	12:23:43	743.72	895	SWICS on at level 2 modulated

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/20/88	12:25:19	745.32	893	SWICS on at level 3 modulated
	12:26:55	746.92	891	SWICS off
End internal calibration sequence.				
07/28/88	14:38:06			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
08/03/88	12:02:23	722.38	8A1	Begin internal calibration
	12:02:55	722.92	897	SWICS on at level 1 modulated
	12:04:31	724.52	895	SWICS on at level 2 modulated
	12:06:07	726.12	893	SWICS on at level 3 modulated
	12:07:43	727.72	891	SWICS off
	12:10:55	730.92	897	SWICS on at level 1 modulated
	12:12:31	732.52	895	SWICS on at level 2 modulated
	12:14:07	734.12	893	SWICS on at level 3 modulated
	12:15:43	735.72	891	SWICS off
	12:34:55	754.92	897	SWICS on at level 1 modulated
	12:36:31	756.52	895	SWICS on at level 2 modulated
	12:38:07	758.12	893	SWICS on at level 3 modulated
	12:39:43	759.72	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
08/14/88	18:38:07	1118.12	419	Address azimuth position A
	18:38:39	1118.65	2xx	Data command, high byte
	18:39:43	1119.72	1xx	Data command, low byte
	18:41:19	1121.32	41B	Address azimuth position B
	18:42:23	1122.38	2xx	Data command, high byte
	18:43:27	1123.45	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ).				
Begin internal calibration sequence.				
08/15/88	04:39:43	279.72	8A1	Begin internal calibration
	04:40:15	280.25	897	SWICS on at level 1 modulated
	04:41:51	281.85	895	SWICS on at level 2 modulated
	04:43:27	283.45	893	SWICS on at level 3 modulated
	04:45:03	285.05	891	SWICS off
	04:48:15	288.25	897	SWICS on at level 1 modulated
	04:49:51	289.85	895	SWICS on at level 2 modulated
	04:51:27	291.45	893	SWICS on at level 3 modulated
	04:53:03	293.05	891	SWICS off
	05:12:15	312.25	897	SWICS on at level 1 modulated
	05:13:51	313.85	895	SWICS on at level 2 modulated
	05:15:27	315.45	893	SWICS on at level 3 modulated
	05:17:03	317.05	891	SWICS off
End internal calibration sequence.				



Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin Sun avoidance operation.				
08/15/88	17:29:19	1049.32	815	Azimuth to position B
08/25/88	14:58:23	898.38	813	Azimuth to 180°
End Sun avoidance operation.				
Begin internal calibration sequence.				
08/26/88	07:08:31	428.52	8A1	Begin internal calibration
	07:09:03	429.05	897	SWICS on at level 1 modulated
	07:10:39	430.65	895	SWICS on at level 2 modulated
	07:12:15	432.25	893	SWICS on at level 3 modulated
	07:13:51	433.85	891	SWICS off
	07:17:03	437.05	897	SWICS on at level 1 modulated
	07:18:39	438.65	895	SWICS on at level 2 modulated
	07:20:15	440.25	893	SWICS on at level 3 modulated
	07:21:51	441.85	891	SWICS off
	07:41:03	461.05	897	SWICS on at level 1 modulated
	07:42:39	462.65	895	SWICS on at level 2 modulated
	07:44:15	464.25	893	SWICS on at level 3 modulated
	07:45:51	465.85	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
08/31/88	11:23:59	683.98	8A1	Begin internal calibration
	11:24:31	684.52	897	SWICS on at level 1 modulated
	11:26:07	686.12	895	SWICS on at level 2 modulated
	11:27:43	687.72	893	SWICS on at level 3 modulated
	11:29:19	689.32	891	SWICS off
	11:32:31	692.52	897	SWICS on at level 1 modulated
	11:34:07	694.12	895	SWICS on at level 2 modulated
	11:35:43	695.72	893	SWICS on at level 3 modulated
	11:37:19	697.32	891	SWICS off
	11:56:31	716.52	897	SWICS on at level 1 modulated
	11:58:07	718.12	895	SWICS on at level 2 modulated
	11:59:43	719.72	893	SWICS on at level 3 modulated
	12:01:19	721.32	891	SWICS off
End internal calibration sequence.				
09/07/88	14:51:10			Yaw maneuver to X-axis positive
Begin internal calibration sequence.				
09/14/88	11:46:23	706.38	8A1	Begin internal calibration
	11:46:55	706.92	897	SWICS on at level 1 modulated
	11:48:31	708.52	895	SWICS on at level 2 modulated
	11:50:07	710.12	893	SWICS on at level 3 modulated
	11:51:43	711.72	891	SWICS off
	11:54:55	714.92	897	SWICS on at level 1 modulated
	11:56:31	716.52	895	SWICS on at level 2 modulated

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/14/88	11:58:07	718.12	893	SWICS on at level 3 modulated
	11:59:43	719.72	891	SWICS off
	12:18:55	738.92	897	SWICS on at level 1 modulated
	12:20:31	740.52	895	SWICS on at level 2 modulated
	12:22:07	742.12	893	SWICS on at level 3 modulated
	12:23:43	743.72	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
09/28/88	11:28:47	688.78	8A1	Begin internal calibration
	11:29:19	689.32	897	SWICS on at level 1 modulated
	11:30:55	690.92	895	SWICS on at level 2 modulated
	11:32:31	692.52	893	SWICS on at level 3 modulated
	11:34:07	694.12	891	SWICS off
	11:37:19	697.32	897	SWICS on at level 1 modulated
	11:38:55	698.92	895	SWICS on at level 2 modulated
	11:40:31	700.52	893	SWICS on at level 3 modulated
	11:42:07	702.12	891	SWICS off
	12:01:19	721.32	897	SWICS on at level 1 modulated
	12:02:55	722.92	895	SWICS on at level 2 modulated
	12:04:31	724.52	893	SWICS on at level 3 modulated
	12:06:07	726.12	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/12/88	11:02:39	662.65	8A1	Begin internal calibration
	11:03:11	663.18	897	SWICS on at level 1 modulated
	11:04:47	664.78	895	SWICS on at level 2 modulated
	11:06:23	666.38	893	SWICS on at level 3 modulated
	11:07:59	667.98	891	SWICS off
	11:11:11	671.18	897	SWICS on at level 1 modulated
	11:12:47	672.78	895	SWICS on at level 2 modulated
	11:14:23	674.38	893	SWICS on at level 3 modulated
	11:15:59	675.98	891	SWICS off
	11:35:11	695.18	897	SWICS on at level 1 modulated
	11:36:47	696.78	895	SWICS on at level 2 modulated
	11:38:23	698.38	893	SWICS on at level 3 modulated
	11:39:59	699.98	891	SWICS off
End internal calibration sequence.				
10/14/88	15:54:06			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
10/26/88	11:12:15	672.25	8A1	Begin internal calibration
	11:12:47	672.78	897	SWICS on at level 1 modulated
	11:14:23	674.38	895	SWICS on at level 2 modulated
	11:15:59	675.98	893	SWICS on at level 3 modulated
	11:17:35	677.58	891	SWICS off

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/26/88	11:20:47	680.78	897	SWICS on at level 1 modulated
	11:22:23	682.38	895	SWICS on at level 2 modulated
	11:23:59	683.98	893	SWICS on at level 3 modulated
	11:25:35	685.58	891	SWICS off
	11:44:47	704.78	897	SWICS on at level 1 modulated
	11:46:23	706.38	895	SWICS on at level 2 modulated
	11:47:59	707.98	893	SWICS on at level 3 modulated
	11:49:35	709.58	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
11/09/88	10:49:19	649.32	8A1	Begin internal calibration
	10:49:51	649.85	897	SWICS on at level 1 modulated
	10:51:27	651.45	895	SWICS on at level 2 modulated
	10:53:03	653.05	893	SWICS on at level 3 modulated
	10:54:39	654.65	891	SWICS off
	10:57:51	657.85	897	SWICS on at level 1 modulated
	10:59:27	659.45	895	SWICS on at level 2 modulated
	11:01:03	661.05	893	SWICS on at level 3 modulated
	11:02:39	662.65	891	SWICS off
	11:21:51	681.85	897	SWICS on at level 1 modulated
	11:23:27	683.45	895	SWICS on at level 2 modulated
	11:25:03	685.05	893	SWICS on at level 3 modulated
	11:26:39	686.65	891	SWICS off
End internal calibration sequence.				
11/16/88	14:21:18			Yaw maneuver to <i>X</i> -axis positive
Begin internal calibration sequence.				
11/23/88	11:11:11	671.18	8A1	Begin internal calibration
	11:11:43	671.72	897	SWICS on at level 1 modulated
	11:13:19	673.32	895	SWICS on at level 2 modulated
	11:14:55	674.92	893	SWICS on at level 3 modulated
	11:16:31	676.52	891	SWICS off
	11:19:43	679.72	897	SWICS on at level 1 modulated
	11:21:19	681.32	895	SWICS on at level 2 modulated
	11:22:55	682.92	893	SWICS on at level 3 modulated
	11:24:31	684.52	891	SWICS off
	11:43:43	703.72	897	SWICS on at level 1 modulated
	11:45:19	705.32	895	SWICS on at level 2 modulated
	11:46:55	706.92	893	SWICS on at level 3 modulated
	11:48:31	708.52	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
12/01/88	15:55:27	955.45	419	Address azimuth position A
	15:55:59	955.98	2xx	Data command, high byte
	15:57:03	957.05	1xx	Data command, low byte
	15:58:07	958.12	41B	Address azimuth position B

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/01/88	15:59:11	959.18	2xx	Data command, high byte
	16:00:15	960.25	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ). Begin internal calibration sequence.				
12/02/88	04:51:27	291.45	8A1	Begin internal calibration
	04:51:59	291.98	897	SWICS on at level 1 modulated
	04:53:35	293.58	895	SWICS on at level 2 modulated
	04:55:11	295.18	893	SWICS on at level 3 modulated
	04:56:47	296.78	891	SWICS off
	04:59:59	299.98	897	SWICS on at level 1 modulated
	05:01:35	301.58	895	SWICS on at level 2 modulated
	05:03:11	303.18	893	SWICS on at level 3 modulated
	05:04:47	304.78	891	SWICS off
	05:23:59	323.98	897	SWICS on at level 1 modulated
	05:25:35	325.58	895	SWICS on at level 2 modulated
	05:27:11	327.18	893	SWICS on at level 3 modulated
	05:28:47	328.78	891	SWICS off
End internal calibration sequence. Begin Sun avoidance operation.				
12/02/88	16:41:19	1001.32	815	Azimuth to position B
12/15/88	18:08:15	1088.25	813	Azimuth to $180^\circ$
End Sun avoidance operation. Begin internal calibration sequence.				
12/16/88	06:25:19	385.32	8A1	Begin internal calibration
	06:25:51	385.85	897	SWICS on at level 1 modulated
	06:27:27	387.45	895	SWICS on at level 2 modulated
	06:29:03	389.05	893	SWICS on at level 3 modulated
	06:30:39	390.65	891	SWICS off
	06:33:51	393.85	897	SWICS on at level 1 modulated
	06:35:27	395.45	895	SWICS on at level 2 modulated
	06:37:03	397.05	893	SWICS on at level 3 modulated
	06:38:39	398.65	891	SWICS off
	06:57:51	417.85	897	SWICS on at level 1 modulated
	06:59:27	419.45	895	SWICS on at level 2 modulated
	07:01:03	421.05	893	SWICS on at level 3 modulated
	07:02:39	422.65	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
12/16/88	07:03:11	423.18	8A1	Begin internal calibration
	07:03:43	423.72	897	SWICS on at level 1 modulated
	07:05:19	425.32	895	SWICS on at level 2 modulated
	07:06:55	426.92	893	SWICS on at level 3 modulated
	07:08:31	428.52	891	SWICS off
	07:11:43	431.72	897	SWICS on at level 1 modulated

Table 10. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/16/88	07:13:19	433.32	895	SWICS on at level 2 modulated
	07:14:55	434.92	893	SWICS on at level 3 modulated
	07:16:31	436.52	891	SWICS off
	07:35:43	455.72	897	SWICS on at level 1 modulated
	07:37:19	457.32	895	SWICS on at level 2 modulated
	07:38:55	458.92	893	SWICS on at level 3 modulated
	07:40:31	460.52	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
12/21/88	10:33:19	633.32	8A1	Begin internal calibration
	10:33:51	633.85	897	SWICS on at level 1 modulated
	10:35:27	635.45	895	SWICS on at level 2 modulated
	10:37:03	637.05	893	SWICS on at level 3 modulated
	10:38:39	638.65	891	SWICS off
	10:41:51	641.85	897	SWICS on at level 1 modulated
	10:43:27	643.45	895	SWICS on at level 2 modulated
	10:45:03	645.05	893	SWICS on at level 3 modulated
	10:46:39	646.65	891	SWICS off
	11:05:51	665.85	897	SWICS on at level 1 modulated
	11:07:27	667.45	895	SWICS on at level 2 modulated
	11:09:03	669.05	893	SWICS on at level 3 modulated
	11:10:39	670.65	891	SWICS off
End internal calibration sequence.				
12/28/88	16:23:10			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
01/05/89	10:49:19	649.32	8A1	Begin internal calibration
	10:49:51	649.85	897	SWICS on at level 1 modulated
	10:51:27	651.45	895	SWICS on at level 2 modulated
	10:53:03	653.05	893	SWICS on at level 3 modulated
	10:54:39	654.65	891	SWICS off
	10:57:51	657.85	897	SWICS on at level 1 modulated
	10:59:27	659.45	895	SWICS on at level 2 modulated
	11:01:03	661.05	893	SWICS on at level 3 modulated
	11:02:39	662.65	891	SWICS off
	11:21:51	681.85	897	SWICS on at level 1 modulated
	11:23:27	683.45	895	SWICS on at level 2 modulated
	11:25:03	685.05	893	SWICS on at level 3 modulated
	11:26:39	686.65	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
01/18/89	10:09:19	609.32	8A1	Begin internal calibration
	10:09:51	609.85	897	SWICS on at level 1 modulated
	10:11:27	611.45	895	SWICS on at level 2 modulated
	10:13:03	613.05	893	SWICS on at level 3 modulated
	10:14:39	614.65	891	SWICS off

Table 10. Continued

(b) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/18/89	10:17:51	617.85	897	SWICS on at level 1 modulated
	10:19:27	619.45	895	SWICS on at level 2 modulated
	10:21:03	621.05	893	SWICS on at level 3 modulated
	10:22:39	622.65	891	SWICS off
	10:41:51	641.85	897	SWICS on at level 1 modulated
	10:43:27	643.45	895	SWICS on at level 2 modulated
	10:45:03	645.05	893	SWICS on at level 3 modulated
	10:46:39	646.65	891	SWICS off
End internal calibration sequence.				
01/26/89	13:50:06			Yaw maneuver to $X$ -axis positive

Table 10. Continued

(c) February 1989 through February 1990

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/01/89	10:29:35	629.58	8A1	Begin internal calibration
	10:30:07	630.12	897	SWICS on at level 1 modulated
	10:31:43	631.72	895	SWICS on at level 2 modulated
	10:33:19	633.32	893	SWICS on at level 3 modulated
	10:34:55	634.92	891	SWICS off
	10:38:07	638.12	897	SWICS on at level 1 modulated
	10:39:43	639.72	895	SWICS on at level 2 modulated
	10:41:19	641.32	893	SWICS on at level 3 modulated
	10:42:55	642.92	891	SWICS off
	11:02:07	662.12	897	SWICS on at level 1 modulated
	11:03:43	663.72	895	SWICS on at level 2 modulated
	11:05:19	665.32	893	SWICS on at level 3 modulated
	11:06:55	666.92	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
02/12/89	04:32:15	272.25	8A1	Begin internal calibration
	04:32:47	272.78	897	SWICS on at level 1 modulated
	04:34:23	274.38	895	SWICS on at level 2 modulated
	04:35:59	275.98	893	SWICS on at level 3 modulated
	04:37:35	277.58	891	SWICS off
	04:40:47	280.78	897	SWICS on at level 1 modulated
	04:42:23	282.38	895	SWICS on at level 2 modulated
	04:43:59	283.98	893	SWICS on at level 3 modulated
	04:45:35	285.58	891	SWICS off
	05:04:47	304.78	897	SWICS on at level 1 modulated
	05:06:23	306.38	895	SWICS on at level 2 modulated
	05:07:59	307.98	893	SWICS on at level 3 modulated
	05:09:35	309.58	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
02/12/89	15:36:47	936.78	419	Address azimuth position A
	15:37:51	937.85	2xx	Data command, high byte
	15:38:55	938.92	1xx	Data command, low byte
	15:40:31	940.52	41B	Address azimuth position B
	15:41:35	941.58	2xx	Data command, high byte
	15:42:39	942.65	1xx	Data command, low byte
End azimuth angle load commands (A = 179°, B = 145°).				
Begin Sun avoidance operation.				
02/13/89	19:46:23	1186.38	815	Azimuth to position B
02/23/89	17:12:15	1032.25	813	Azimuth to 180°
End Sun avoidance operation.				

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/24/89	03:53:19	233.32	8A1	Begin internal calibration
	03:53:51	233.85	897	SWICS on at level 1 modulated
	03:55:27	235.45	895	SWICS on at level 2 modulated
	03:57:03	237.05	893	SWICS on at level 3 modulated
	03:58:39	238.65	891	SWICS off
	04:01:51	241.85	897	SWICS on at level 1 modulated
	04:03:27	243.45	895	SWICS on at level 2 modulated
	04:05:03	245.05	893	SWICS on at level 3 modulated
	04:06:39	246.65	891	SWICS off
	04:25:51	265.85	897	SWICS on at level 1 modulated
	04:27:27	267.45	895	SWICS on at level 2 modulated
	04:29:03	269.05	893	SWICS on at level 3 modulated
	04:30:39	270.65	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/01/89	11:14:55	674.92	8A1	Begin internal calibration
	11:15:27	675.45	897	SWICS on at level 1 modulated
	11:17:03	677.05	895	SWICS on at level 2 modulated
	11:18:39	678.65	893	SWICS on at level 3 modulated
	11:20:15	680.25	891	SWICS off
	11:23:27	683.45	897	SWICS on at level 1 modulated
	11:25:03	685.05	895	SWICS on at level 2 modulated
	11:26:39	686.65	893	SWICS on at level 3 modulated
	11:28:15	688.25	891	SWICS off
	11:47:27	707.45	897	SWICS on at level 1 modulated
	11:49:03	709.05	895	SWICS on at level 2 modulated
	11:50:39	710.65	893	SWICS on at level 3 modulated
	11:52:15	712.25	891	SWICS off
End internal calibration sequence.				
03/07/89	15:10:06			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
03/15/89	11:13:51	673.85	8A1	Begin internal calibration
	11:14:23	674.38	897	SWICS on at level 1 modulated
	11:15:59	675.98	895	SWICS on at level 2 modulated
	11:17:35	677.58	893	SWICS on at level 3 modulated
	11:19:11	679.18	891	SWICS off
	11:22:23	682.38	897	SWICS on at level 1 modulated
	11:23:59	683.98	895	SWICS on at level 2 modulated
	11:25:35	685.58	893	SWICS on at level 3 modulated
	11:27:11	687.18	891	SWICS off
	11:46:23	706.38	897	SWICS on at level 1 modulated
	11:47:59	707.98	895	SWICS on at level 2 modulated



Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/15/89	11:49:35	709.58	893	SWICS on at level 3 modulated
	11:51:11	711.18	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/15/89	11:51:43	711.72	8A1	Begin internal calibration
	11:52:15	712.25	897	SWICS on at level 1 modulated
	11:53:51	713.85	895	SWICS on at level 2 modulated
	11:55:27	715.45	893	SWICS on at level 3 modulated
	11:57:03	717.05	891	SWICS off
	12:00:15	720.25	897	SWICS on at level 1 modulated
	12:01:51	721.85	895	SWICS on at level 2 modulated
	12:03:27	723.45	893	SWICS on at level 3 modulated
	12:05:03	725.05	891	SWICS off
	12:24:15	744.25	897	SWICS on at level 1 modulated
	12:25:51	745.85	895	SWICS on at level 2 modulated
	12:27:27	747.45	893	SWICS on at level 3 modulated
	12:29:03	749.05	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/22/89	10:54:07	654.12	8A1	Begin internal calibration
	10:54:39	654.65	897	SWICS on at level 1 modulated
	10:56:15	656.25	895	SWICS on at level 2 modulated
	10:57:51	657.85	893	SWICS on at level 3 modulated
	10:59:27	659.45	891	SWICS off
	11:02:39	662.65	897	SWICS on at level 1 modulated
	11:04:15	664.25	895	SWICS on at level 2 modulated
	11:05:51	665.85	893	SWICS on at level 3 modulated
	11:07:27	667.45	891	SWICS off
	11:26:39	686.65	897	SWICS on at level 1 modulated
	11:28:15	688.25	895	SWICS on at level 2 modulated
	11:29:51	689.85	893	SWICS on at level 3 modulated
	11:31:27	691.45	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/22/89	11:31:59	691.98	8A1	Begin internal calibration
	11:32:31	692.52	897	SWICS on at level 1 modulated
	11:34:07	694.12	895	SWICS on at level 2 modulated
	11:35:43	695.72	893	SWICS on at level 3 modulated
	11:37:19	697.32	891	SWICS off
	11:40:31	700.52	897	SWICS on at level 1 modulated
	11:42:07	702.12	895	SWICS on at level 2 modulated
	11:43:43	703.72	893	SWICS on at level 3 modulated
	11:45:19	705.32	891	SWICS off
	12:04:31	724.52	897	SWICS on at level 1 modulated

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/22/89	12:06:07	726.12	895	SWICS on at level 2 modulated
	12:07:43	727.72	893	SWICS on at level 3 modulated
	12:09:19	729.32	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/29/89	10:42:23	642.38	8A1	Begin internal calibration
	10:42:55	642.92	897	SWICS on at level 1 modulated
	10:44:31	644.52	895	SWICS on at level 2 modulated
	10:46:07	646.12	893	SWICS on at level 3 modulated
	10:47:43	647.72	891	SWICS off
	10:50:55	650.92	897	SWICS on at level 1 modulated
	10:52:31	652.52	895	SWICS on at level 2 modulated
	10:54:07	654.12	893	SWICS on at level 3 modulated
	10:55:43	655.72	891	SWICS off
	11:14:55	674.92	897	SWICS on at level 1 modulated
	11:16:31	676.52	895	SWICS on at level 2 modulated
	11:18:07	678.12	893	SWICS on at level 3 modulated
	11:19:43	679.72	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/12/89	10:11:27	611.45	8A1	Begin internal calibration
	10:11:59	611.98	897	SWICS on at level 1 modulated
	10:13:35	613.58	895	SWICS on at level 2 modulated
	10:15:11	615.18	893	SWICS on at level 3 modulated
	10:16:47	616.78	891	SWICS off
	10:19:59	619.98	897	SWICS on at level 1 modulated
	10:21:35	621.58	895	SWICS on at level 2 modulated
	10:23:11	623.18	893	SWICS on at level 3 modulated
	10:24:47	624.78	891	SWICS off
	10:43:59	643.98	897	SWICS on at level 1 modulated
	10:45:35	645.58	895	SWICS on at level 2 modulated
	10:47:11	647.18	893	SWICS on at level 3 modulated
	10:48:47	648.78	891	SWICS off
End internal calibration sequence.				
04/14/89	16:04:14			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
04/26/89	10:25:19	625.32	8A1	Begin internal calibration
	10:25:51	625.85	897	SWICS on at level 1 modulated
	10:27:27	627.45	895	SWICS on at level 2 modulated
	10:29:03	629.05	893	SWICS on at level 3 modulated
	10:30:39	630.65	891	SWICS off
	10:33:51	633.85	897	SWICS on at level 1 modulated
	10:35:27	635.45	895	SWICS on at level 2 modulated

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/26/89	10:37:03	637.05	893	SWICS on at level 3 modulated
	10:38:39	638.65	891	SWICS off
	10:57:51	657.85	897	SWICS on at level 1 modulated
	10:59:27	659.45	895	SWICS on at level 2 modulated
	11:01:03	661.05	893	SWICS on at level 3 modulated
	11:02:39	662.65	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/10/89	09:51:11	591.18	8A1	Begin internal calibration
	09:51:43	591.72	897	SWICS on at level 1 modulated
	09:53:19	593.32	895	SWICS on at level 2 modulated
	09:54:55	594.92	893	SWICS on at level 3 modulated
	09:56:31	596.52	891	SWICS off
	09:59:43	599.72	897	SWICS on at level 1 modulated
	10:01:19	601.32	895	SWICS on at level 2 modulated
	10:02:55	602.92	893	SWICS on at level 3 modulated
	10:04:31	604.52	891	SWICS off
	10:23:43	623.72	897	SWICS on at level 1 modulated
	10:25:19	625.32	895	SWICS on at level 2 modulated
	10:26:55	626.92	893	SWICS on at level 3 modulated
	10:28:31	628.52	891	SWICS off
End internal calibration sequence.				
05/18/89	14:08:14			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
05/24/89	09:47:27	587.45	8A1	Begin internal calibration
	09:47:59	587.98	897	SWICS on at level 1 modulated
	09:49:35	589.58	895	SWICS on at level 2 modulated
	09:51:11	591.18	893	SWICS on at level 3 modulated
	09:52:47	592.78	891	SWICS off
	09:55:59	595.98	897	SWICS on at level 1 modulated
	09:57:35	597.58	895	SWICS on at level 2 modulated
	09:59:11	599.18	893	SWICS on at level 3 modulated
	10:00:47	600.78	891	SWICS off
	10:19:59	619.98	897	SWICS on at level 1 modulated
	10:21:35	621.58	895	SWICS on at level 2 modulated
	10:23:11	623.18	893	SWICS on at level 3 modulated
	10:24:47	624.78	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
05/31/89	14:28:31	868.52	419	Address azimuth position A
	14:29:35	869.58	2xx	Data command, high byte
	14:30:39	870.65	1xx	Data command, low byte
	14:31:43	871.72	41B	Address azimuth position B

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/31/89	14:32:15	872.25	2xx	Data command, high byte
	14:33:19	873.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ). Begin internal calibration sequence.				
06/01/89	04:41:51	281.85	8A1	Begin internal calibration
	04:42:23	282.38	897	SWICS on at level 1 modulated
	04:43:59	283.98	895	SWICS on at level 2 modulated
	04:45:35	285.58	893	SWICS on at level 3 modulated
	04:47:11	287.18	891	SWICS off
	04:50:23	290.38	897	SWICS on at level 1 modulated
	04:51:59	291.98	895	SWICS on at level 2 modulated
	04:53:35	293.58	893	SWICS on at level 3 modulated
	04:55:11	295.18	891	SWICS off
	05:14:23	314.38	897	SWICS on at level 1 modulated
	05:15:59	315.98	895	SWICS on at level 2 modulated
	05:17:35	317.58	893	SWICS on at level 3 modulated
	05:19:11	319.18	891	SWICS off
End internal calibration sequence. Begin Sun avoidance operation.				
06/01/89	17:31:27	1051.45	815	Azimuth to position B
06/15/89	19:00:31	1140.52	813	Azimuth to $180^\circ$
End Sun avoidance operation. Begin internal calibration sequence.				
06/16/89	06:15:43	375.72	8A1	Begin internal calibration
	06:16:15	376.25	897	SWICS on at level 1 modulated
	06:17:51	377.85	895	SWICS on at level 2 modulated
	06:19:27	379.45	893	SWICS on at level 3 modulated
	06:21:03	381.05	891	SWICS off
	06:24:15	384.25	897	SWICS on at level 1 modulated
	06:25:51	385.85	895	SWICS on at level 2 modulated
	06:27:27	387.45	893	SWICS on at level 3 modulated
	06:29:03	389.05	891	SWICS off
	06:48:15	408.25	897	SWICS on at level 1 modulated
	06:49:51	409.85	895	SWICS on at level 2 modulated
	06:51:27	411.45	893	SWICS on at level 3 modulated
	06:53:03	413.05	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
06/21/89	11:59:43	719.72	8A1	Begin internal calibration
	12:00:15	720.25	897	SWICS on at level 1 modulated
	12:01:51	721.85	895	SWICS on at level 2 modulated
	12:03:27	723.45	893	SWICS on at level 3 modulated

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/21/89	12:05:03	725.05	891	SWICS off
	12:08:15	728.25	897	SWICS on at level 1 modulated
	12:09:51	729.85	895	SWICS on at level 2 modulated
	12:11:27	731.45	893	SWICS on at level 3 modulated
	12:13:03	733.05	891	SWICS off
	12:32:15	752.25	897	SWICS on at level 1 modulated
	12:33:51	753.85	895	SWICS on at level 2 modulated
	12:35:27	755.45	893	SWICS on at level 3 modulated
	12:37:03	757.05	891	SWICS off
End internal calibration sequence.				
06/28/89	00:56:14			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
07/05/89	10:30:39	630.65	8A1	Begin internal calibration
	10:31:11	631.18	897	SWICS on at level 1 modulated
	10:32:47	632.78	895	SWICS on at level 2 modulated
	10:34:23	634.38	893	SWICS on at level 3 modulated
	10:35:59	635.98	891	SWICS off
	10:39:11	639.18	897	SWICS on at level 1 modulated
	10:40:47	640.78	895	SWICS on at level 2 modulated
	10:42:23	642.38	893	SWICS on at level 3 modulated
	10:43:59	643.98	891	SWICS off
	11:03:11	663.18	897	SWICS on at level 1 modulated
	11:04:47	664.78	895	SWICS on at level 2 modulated
	11:06:23	666.38	893	SWICS on at level 3 modulated
	11:07:59	667.98	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
07/19/89	11:27:43	687.72	8A1	Begin internal calibration
	11:28:15	688.25	897	SWICS on at level 1 modulated
	11:29:51	689.85	895	SWICS on at level 2 modulated
	11:31:27	691.45	893	SWICS on at level 3 modulated
	11:33:03	693.05	891	SWICS off
	11:36:15	696.25	897	SWICS on at level 1 modulated
	11:37:51	697.85	895	SWICS on at level 2 modulated
	11:39:27	699.45	893	SWICS on at level 3 modulated
	11:41:03	701.05	891	SWICS off
	12:00:15	720.25	897	SWICS on at level 1 modulated
	12:01:51	721.85	895	SWICS on at level 2 modulated
	12:03:27	723.45	893	SWICS on at level 3 modulated
	12:05:03	725.05	891	SWICS off
End internal calibration sequence.				
07/27/89	14:05:18			Yaw maneuver to $X$ -axis negative

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
08/02/89	11:23:27	683.45	8A1	Begin internal calibration
	11:23:59	683.98	897	SWICS on at level 1 modulated
	11:25:35	685.58	895	SWICS on at level 2 modulated
	11:27:11	687.18	893	SWICS on at level 3 modulated
	11:28:47	688.78	891	SWICS off
	11:31:59	691.98	897	SWICS on at level 1 modulated
	11:33:35	693.58	895	SWICS on at level 2 modulated
	11:35:11	695.18	893	SWICS on at level 3 modulated
	11:36:47	696.78	891	SWICS off
	11:55:59	715.98	897	SWICS on at level 1 modulated
	11:57:35	717.58	895	SWICS on at level 2 modulated
	11:59:11	719.18	893	SWICS on at level 3 modulated
	12:00:47	720.78	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
08/13/89	21:53:51	1313.85	419	Address azimuth position A
	21:54:23	1314.38	2xx	Data command, high byte
	21:55:59	1315.98	1xx	Data command, low byte
	21:57:35	1317.58	41B	Address azimuth position B
	21:58:39	1318.65	2xx	Data command, high byte
	21:59:43	1319.72	1xx	Data command, low byte
End azimuth angle load commands (A = 179°, B = 145°).				
Begin internal calibration sequence.				
08/14/89	03:45:51	225.85	8A1	Begin internal calibration
	03:46:23	226.38	897	SWICS on at level 1 modulated
	03:47:59	227.98	895	SWICS on at level 2 modulated
	03:49:35	229.58	893	SWICS on at level 3 modulated
	03:51:11	231.18	891	SWICS off
	03:54:23	234.38	897	SWICS on at level 1 modulated
	03:55:59	235.98	895	SWICS on at level 2 modulated
	03:57:35	237.58	893	SWICS on at level 3 modulated
	03:59:11	239.18	891	SWICS off
	04:18:23	258.38	897	SWICS on at level 1 modulated
	04:19:59	259.98	895	SWICS on at level 2 modulated
	04:21:35	261.58	893	SWICS on at level 3 modulated
	04:23:11	263.18	891	SWICS off
End internal calibration sequence.				
Begin Sun avoidance operation.				
08/14/89	14:59:27	899.45	815	Azimuth to position B
08/24/89	17:07:27	1027.45	813	Azimuth to 180°
End Sun avoidance operation.				

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
08/25/89	06:00:47	360.78	8A1	Begin internal calibration
	06:01:19	361.32	897	SWICS on at level 1 modulated
	06:02:55	362.92	895	SWICS on at level 2 modulated
	06:04:31	364.52	893	SWICS on at level 3 modulated
	06:06:07	366.12	891	SWICS off
	06:09:19	369.32	897	SWICS on at level 1 modulated
	06:10:55	370.92	895	SWICS on at level 2 modulated
	06:12:31	372.52	893	SWICS on at level 3 modulated
	06:14:07	374.12	891	SWICS off
	06:33:19	393.32	897	SWICS on at level 1 modulated
	06:34:55	394.92	895	SWICS on at level 2 modulated
	06:36:31	396.52	893	SWICS on at level 3 modulated
	06:38:07	398.12	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
08/30/89	10:09:19	609.32	8A1	Begin internal calibration
	10:09:51	609.85	897	SWICS on at level 1 modulated
	10:11:27	611.45	895	SWICS on at level 2 modulated
	10:13:03	613.05	893	SWICS on at level 3 modulated
	10:14:39	614.65	891	SWICS off
	10:17:51	617.85	897	SWICS on at level 1 modulated
	10:19:27	619.45	895	SWICS on at level 2 modulated
	10:21:03	621.05	893	SWICS on at level 3 modulated
	10:22:39	622.65	891	SWICS off
	10:41:51	641.85	897	SWICS on at level 1 modulated
	10:43:27	643.45	895	SWICS on at level 2 modulated
	10:45:03	645.05	893	SWICS on at level 3 modulated
	10:46:39	646.65	891	SWICS off
End internal calibration sequence.				
09/06/89	15:14:06			Yaw maneuver to X-axis positive
Begin internal calibration sequence.				
09/13/89	10:13:35	613.58	8A1	Begin internal calibration
	10:14:07	614.12	897	SWICS on at level 1 modulated
	10:15:43	615.72	895	SWICS on at level 2 modulated
	10:17:19	617.32	893	SWICS on at level 3 modulated
	10:18:55	618.92	891	SWICS off
	10:22:07	622.12	897	SWICS on at level 1 modulated
	10:23:43	623.72	895	SWICS on at level 2 modulated
	10:25:19	625.32	893	SWICS on at level 3 modulated
	10:26:55	626.92	891	SWICS off
	10:46:07	646.12	897	SWICS on at level 1 modulated
	10:47:43	647.72	895	SWICS on at level 2 modulated

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/13/89	10:49:19	649.32	893	SWICS on at level 3 modulated
	10:50:55	650.92	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
09/27/89	09:36:15	576.25	8A1	Begin internal calibration
	09:36:47	576.78	897	SWICS on at level 1 modulated
	09:38:23	578.38	895	SWICS on at level 2 modulated
	09:39:59	579.98	893	SWICS on at level 3 modulated
	09:41:35	581.58	891	SWICS off
	09:44:47	584.78	897	SWICS on at level 1 modulated
	09:46:23	586.38	895	SWICS on at level 2 modulated
	09:47:59	587.98	893	SWICS on at level 3 modulated
	09:49:35	589.58	891	SWICS off
	10:08:47	608.78	897	SWICS on at level 1 modulated
	10:10:23	610.38	895	SWICS on at level 2 modulated
	10:11:59	611.98	893	SWICS on at level 3 modulated
	10:13:35	613.58	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/11/89	10:27:59	627.98	8A1	Begin internal calibration
	10:28:31	628.52	897	SWICS on at level 1 modulated
	10:30:07	630.12	895	SWICS on at level 2 modulated
	10:31:43	631.72	893	SWICS on at level 3 modulated
	10:33:19	633.32	891	SWICS off
	10:36:31	636.52	897	SWICS on at level 1 modulated
	10:38:07	638.12	895	SWICS on at level 2 modulated
	10:39:43	639.72	893	SWICS on at level 3 modulated
	10:41:19	641.32	891	SWICS off
	11:00:31	660.52	897	SWICS on at level 1 modulated
	11:02:07	662.12	895	SWICS on at level 2 modulated
	11:03:43	663.72	893	SWICS on at level 3 modulated
	11:05:19	665.32	891	SWICS off
End internal calibration sequence.				
10/13/89	15:15:10			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
10/25/89	11:54:23	714.38	8A1	Begin internal calibration
	11:54:55	714.92	897	SWICS on at level 1 modulated
	11:56:31	716.52	895	SWICS on at level 2 modulated
	11:58:07	718.12	893	SWICS on at level 3 modulated
	11:59:43	719.72	891	SWICS off
	12:02:55	722.92	897	SWICS on at level 1 modulated
	12:04:31	724.52	895	SWICS on at level 2 modulated
	12:06:07	726.12	893	SWICS on at level 3 modulated



Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/25/89	12:07:43	727.72	891	SWICS off
	12:26:55	746.92	897	SWICS on at level 1 modulated
	12:28:31	748.52	895	SWICS on at level 2 modulated
	12:30:07	750.12	893	SWICS on at level 3 modulated
	12:31:43	751.72	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
11/08/89	11:11:11	671.18	8A1	Begin internal calibration
	11:11:43	671.72	897	SWICS on at level 1 modulated
	11:13:19	673.32	895	SWICS on at level 2 modulated
	11:14:55	674.92	893	SWICS on at level 3 modulated
	11:16:31	676.52	891	SWICS off
	11:19:43	679.72	897	SWICS on at level 1 modulated
	11:21:19	681.32	895	SWICS on at level 2 modulated
	11:22:55	682.92	893	SWICS on at level 3 modulated
	11:24:31	684.52	891	SWICS off
	11:43:43	703.72	897	SWICS on at level 1 modulated
	11:45:19	705.32	895	SWICS on at level 2 modulated
	11:46:55	706.92	893	SWICS on at level 3 modulated
	11:48:31	708.52	891	SWICS off
End internal calibration sequence.				
11/14/89	19:26:06			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
11/22/89	11:11:11	671.18	8A1	Begin internal calibration
	11:11:43	671.72	897	SWICS on at level 1 modulated
	11:13:19	673.32	895	SWICS on at level 2 modulated
	11:14:55	674.92	893	SWICS on at level 3 modulated
	11:16:31	676.52	891	SWICS off
	11:19:43	679.72	897	SWICS on at level 1 modulated
	11:21:19	681.32	895	SWICS on at level 2 modulated
	11:22:55	682.92	893	SWICS on at level 3 modulated
	11:24:31	684.52	891	SWICS off
	11:43:43	703.72	897	SWICS on at level 1 modulated
	11:45:19	705.32	895	SWICS on at level 2 modulated
	11:46:55	706.92	893	SWICS on at level 3 modulated
	11:48:31	708.52	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
11/29/89	20:39:11	1239.18	419	Address azimuth position A
	20:39:43	1239.72	2xx	Data command, high byte
	20:40:47	1240.78	1xx	Data command, low byte
	20:41:51	1241.85	41B	Address azimuth position B
	20:42:23	1242.38	2xx	Data command, high byte
	20:43:27	1243.45	1xx	Data command, low byte
End azimuth angle load commands ( $A = 179^\circ$ , $B = 145^\circ$ ).				

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
11/30/89	06:04:31	364.52	8A1	Begin internal calibration
	06:05:03	365.05	897	SWICS on at level 1 modulated
	06:06:39	366.65	895	SWICS on at level 2 modulated
	06:08:15	368.25	893	SWICS on at level 3 modulated
	06:09:51	369.85	891	SWICS off
	06:13:03	373.05	897	SWICS on at level 1 modulated
	06:14:39	374.65	895	SWICS on at level 2 modulated
	06:16:15	376.25	893	SWICS on at level 3 modulated
	06:17:51	377.85	891	SWICS off
	06:37:03	397.05	897	SWICS on at level 1 modulated
	06:38:39	398.65	895	SWICS on at level 2 modulated
	06:40:15	400.25	893	SWICS on at level 3 modulated
	06:41:51	401.85	891	SWICS off
End internal calibration sequence.				
Begin Sun avoidance operation.				
11/30/89	14:40:15	880.25	815	Azimuth to position B
12/14/89	19:08:31	1148.52	813	Azimuth to 180°
End Sun avoidance operation.				
Begin internal calibration sequence.				
12/15/89	05:49:35	349.58	8A1	Begin internal calibration
	05:50:07	350.12	897	SWICS on at level 1 modulated
	05:51:43	351.72	895	SWICS on at level 2 modulated
	05:53:19	353.32	893	SWICS on at level 3 modulated
	05:54:55	354.92	891	SWICS off
	05:58:07	358.12	897	SWICS on at level 1 modulated
	05:59:43	359.72	895	SWICS on at level 2 modulated
	06:01:19	361.32	893	SWICS on at level 3 modulated
	06:02:55	362.92	891	SWICS off
	06:22:07	382.12	897	SWICS on at level 1 modulated
	06:23:43	383.72	895	SWICS on at level 2 modulated
	06:25:19	385.32	893	SWICS on at level 3 modulated
	06:26:55	386.92	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
12/20/89	11:25:35	685.58	8A1	Begin internal calibration
	11:26:07	686.12	897	SWICS on at level 1 modulated
	11:27:43	687.72	895	SWICS on at level 2 modulated
	11:29:19	689.32	893	SWICS on at level 3 modulated
	11:30:55	690.92	891	SWICS off
	11:34:07	694.12	897	SWICS on at level 1 modulated
	11:35:43	695.72	895	SWICS on at level 2 modulated

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/20/89	11:37:19	697.32	893	SWICS on at level 3 modulated
	11:38:55	698.92	891	SWICS off
	11:58:07	718.12	897	SWICS on at level 1 modulated
	11:59:43	719.72	895	SWICS on at level 2 modulated
	12:01:19	721.32	893	SWICS on at level 3 modulated
	12:02:55	722.92	891	SWICS off
End internal calibration sequence.				
12/28/89	19:00:14			Yaw maneuver to $X$ -axis negative
Begin internal calibration sequence.				
01/03/90	11:07:26	667.43	8A1	Begin internal calibration
	11:07:58	667.97	897	SWICS on at level 1 modulated
	11:09:34	669.57	895	SWICS on at level 2 modulated
	11:11:10	671.17	893	SWICS on at level 3 modulated
	11:12:46	672.77	891	SWICS off
	11:15:58	675.97	897	SWICS on at level 1 modulated
	11:17:34	677.57	895	SWICS on at level 2 modulated
	11:19:10	679.17	893	SWICS on at level 3 modulated
	11:20:46	680.77	891	SWICS off
	11:39:58	699.97	897	SWICS on at level 1 modulated
	11:41:34	701.57	895	SWICS on at level 2 modulated
	11:43:10	703.17	893	SWICS on at level 3 modulated
	11:44:46	704.77	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
01/17/90	10:15:42	615.70	8A1	Begin internal calibration
	10:16:14	616.23	897	SWICS on at level 1 modulated
	10:17:50	617.83	895	SWICS on at level 2 modulated
	10:19:26	619.43	893	SWICS on at level 3 modulated
	10:21:02	621.03	891	SWICS off
	10:24:14	624.23	897	SWICS on at level 1 modulated
	10:25:50	625.83	895	SWICS on at level 2 modulated
	10:27:26	627.43	893	SWICS on at level 3 modulated
	10:29:02	629.03	891	SWICS off
	10:48:14	648.23	897	SWICS on at level 1 modulated
	10:49:50	649.83	895	SWICS on at level 2 modulated
	10:51:26	651.43	893	SWICS on at level 3 modulated
	10:53:02	653.03	891	SWICS off
End internal calibration sequence.				
01/25/90	18:50:05			Yaw maneuver to $X$ -axis positive
Begin internal calibration sequence.				
01/31/90	11:50:06	710.10	8A1	Begin internal calibration
	11:50:38	710.63	897	SWICS on at level 1 modulated
	11:52:14	712.23	895	SWICS on at level 2 modulated

Table 10. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/31/90	11:53:50	713.83	893	SWICS on at level 3 modulated
	11:55:26	715.43	891	SWICS off
	11:58:38	718.63	897	SWICS on at level 1 modulated
	12:00:14	720.23	895	SWICS on at level 2 modulated
	12:01:50	721.83	893	SWICS on at level 3 modulated
	12:03:26	723.43	891	SWICS off
	12:22:38	742.63	897	SWICS on at level 1 modulated
	12:24:14	744.23	895	SWICS on at level 2 modulated
	12:25:50	745.83	893	SWICS on at level 3 modulated
	12:27:26	747.43	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for Sun avoidance angles.				
02/10/90	12:26:54	746.90	419	Address azimuth position A
	12:27:26	747.43	2xx	Data command, high byte
	12:28:30	748.50	1xx	Data command, low byte
	12:29:34	749.57	41B	Address azimuth position B
	12:30:06	750.10	2xx	Data command, high byte
	12:31:10	751.17	1xx	Data command, low byte
End azimuth angle load commands (A = 179°, B = 145°).				
Begin internal calibration sequence.				
02/11/90	05:35:42	335.70	8A1	Begin internal calibration
	05:36:14	336.23	897	SWICS on at level 1 modulated
	05:37:50	337.83	895	SWICS on at level 2 modulated
	05:39:26	339.43	893	SWICS on at level 3 modulated
	05:41:02	341.03	891	SWICS off
	05:44:14	344.23	897	SWICS on at level 1 modulated
	05:45:50	345.83	895	SWICS on at level 2 modulated
	05:47:26	347.43	893	SWICS on at level 3 modulated
	05:49:02	349.03	891	SWICS off
	06:08:14	368.23	897	SWICS on at level 1 modulated
	06:09:50	369.83	895	SWICS on at level 2 modulated
	06:11:26	371.43	893	SWICS on at level 3 modulated
	06:13:02	373.03	891	SWICS off
End internal calibration sequence.				
Begin Sun avoidance operation.				
02/11/90	10:57:18	657.30	815	Azimuth to position B
02/22/90	14:42:22	882.37	813	Azimuth to 180°
End Sun avoidance operation.				
Begin internal calibration sequence.				
02/23/90	06:14:06	374.10	8A1	Begin internal calibration
	06:14:38	374.63	897	SWICS on at level 1 modulated
	06:16:14	376.23	895	SWICS on at level 2 modulated
	06:17:50	377.83	893	SWICS on at level 3 modulated

Table 10. Concluded

(c) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/23/90	06:19:26	379.43	891	SWICS off
	06:22:38	382.63	897	SWICS on at level 1 modulated
	06:24:14	384.23	895	SWICS on at level 2 modulated
	06:25:50	385.83	893	SWICS on at level 3 modulated
	06:27:26	387.43	891	SWICS off
	06:46:38	406.63	897	SWICS on at level 1 modulated
	06:48:14	408.23	895	SWICS on at level 2 modulated
	06:49:50	409.83	893	SWICS on at level 3 modulated
	06:51:26	411.43	891	SWICS off
End internal calibration sequence.				

Table 11. Operational Commands Executed by Nonscanner Instrument on NOAA 10 Spacecraft  
From February 1987 Through May 1989

(a) February 1987 through January 1988

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin preinternal calibration sequence.				
02/04/87	09:32:59	572.98	821	Elevate to internal source (stow)
	09:33:31	573.52	862	WFOV BB heater on at temp. 1
	09:48:59	588.98	872	MFOV BB heater on at temp. 1
	11:15:55	675.92	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/04/87	11:16:27	676.45	8A1	Begin internal calibration
	11:16:59	676.98	881	Detector bias heater off
	11:17:31	677.52	852	Solar port heaters off
	11:18:03	678.05	821	Elevate to internal source (stow)
	11:18:35	678.58	851	Solar port heaters on
	11:20:43	680.72	882	Detector bias heater on at level 1
	11:22:51	682.85	892	SWICS on at level 3
	11:26:03	686.05	881	Detector bias heater off
	11:29:47	689.78	862	WFOV BB heater on at temp. 1
	11:30:19	690.32	872	MFOV BB heater on at temp. 1
	11:31:23	691.38	891	SWICS off
	11:44:43	704.72	883	Detector bias heater on at level 2
	11:46:51	706.85	893	SWICS on at level 2
	11:50:03	710.05	881	Detector bias heater off
	11:53:47	713.78	863	WFOV BB heater on at temp. 2
	11:54:19	714.32	873	MFOV BB heater on at temp. 2
	11:55:23	715.38	891	SWICS off
	12:08:43	728.72	884	Detector bias heater on at level 3
	12:10:51	730.85	894	SWICS on at level 1
	12:12:59	732.98	881	Detector bias heater off
	12:15:39	735.65	852	Solar port heaters off
	12:16:43	736.72	861	WFOV BB heater off
	12:17:15	737.25	871	MFOV BB heater off
	12:17:47	737.78	851	Solar port heaters on
	12:18:19	738.32	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
02/04/87	12:20:59	740.98	419	Address azimuth position A
	12:21:31	741.52	2xx	Data command, high byte
	12:22:03	742.05	1xx	Data command, low byte
End azimuth angle load commands (A = 163.05°).				
Begin solar calibration sequence.				
02/04/87	12:22:35	742.58	8A2	Begin solar calibration
	12:23:07	743.12	852	Solar port heaters off
	12:23:39	743.65	822	Elevate to solar ports (Sun)
	12:24:11	744.18	814	Azimuth to position A

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/04/87	12:24:43	744.72	882	Detector bias heater on at level 1
	12:34:19	754.32	851	Solar port heaters on
	12:34:51	754.85	831	SMA shutter cycle on
	13:05:47	785.78	832	SMA shutter cycle off
	13:06:19	786.32	852	Solar port heaters off
	13:06:51	786.85	813	Azimuth to 180°
	13:07:23	787.38	881	Detector bias heater off
	13:16:59	796.98	823	Elevate to nadir (Earth)
	13:17:31	797.52	851	Solar port heaters on
End solar calibration sequence.				
Begin preinternal calibration sequence.				
02/18/87	09:26:03	566.05	821	Elevate to internal source (stow)
	09:26:35	566.58	862	WFOV BB heater on at temp. 1
	09:42:03	582.05	872	MFOV BB heater on at temp. 1
	11:08:59	668.98	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/18/87	11:09:31	669.52	8A1	Begin internal calibration
	11:10:03	670.05	881	Detector bias heater off
	11:10:35	670.58	852	Solar port heaters off
	11:11:07	671.12	821	Elevate to internal source (stow)
	11:11:39	671.65	851	Solar port heaters on
	11:13:47	673.78	882	Detector bias heater on at level 1
	11:15:55	675.92	892	SWICS on at level 3
	11:19:07	679.12	881	Detector bias heater off
	11:22:51	682.85	862	WFOV BB heater on at temp. 1
	11:23:23	683.38	872	MFOV BB heater on at temp. 1
	11:24:27	684.45	891	SWICS off
	11:37:47	697.78	883	Detector bias heater on at level 2
	11:39:55	699.92	893	SWICS on at level 2
	11:43:07	703.12	881	Detector bias heater off
	11:46:51	706.85	863	WFOV BB heater on at temp. 2
	11:47:23	707.38	873	MFOV BB heater on at temp. 2
	11:48:27	708.45	891	SWICS off
	12:01:47	721.78	884	Detector bias heater on at level 3
	12:03:55	723.92	894	SWICS on at level 1
	12:06:03	726.05	881	Detector bias heater off
	12:08:43	728.72	852	Solar port heaters off
	12:09:47	729.78	861	WFOV BB heater off
	12:10:19	730.32	871	MFOV BB heater off
	12:10:51	730.85	851	Solar port heaters on
	12:11:23	731.38	891	SWICS off
End internal calibration sequence.				

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin azimuth angle load commands for solar calibration				
02/18/87	12:14:03	734.05	419	Address azimuth position A
	12:14:35	734.58	2XX	Data command, high byte
	12:15:07	735.12	1xx	Data command, low byte
End azimuth angle load commands (A = 164.25°).				
Begin solar calibration sequence.				
02/18/87	12:15:39	735.65	8A2	Begin solar calibration
	12:16:11	736.18	852	Solar port heaters off
	12:16:43	736.72	822	Elevate to solar ports (Sun)
	12:17:15	737.25	814	Azimuth to position A
	12:17:47	737.78	882	Detector bias heater on at level 1
	12:27:23	747.38	851	Solar port heaters on
	12:27:55	747.92	831	SMA shutter cycle on
	12:58:51	778.85	832	SMA shutter cycle off
	12:59:23	779.38	852	Solar port heaters off
	12:59:55	779.92	813	Azimuth to 180°
	13:00:27	780.45	881	Detector bias heater off
	13:10:03	790.05	823	Elevate to nadir (Earth)
	13:10:35	790.58	851	Solar port heaters on
End solar calibration sequence.				
Begin preinternal calibration sequence.				
03/04/87	09:18:03	558.05	821	Elevate to internal source (stow)
	09:18:35	558.58	862	WFOV BB heater on at temp. 1
	09:34:03	574.05	872	MFOV BB heater on at temp. 1
	11:00:59	660.98	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/04/87	11:01:31	661.52	8A1	Begin internal calibration
	11:02:03	662.05	881	Detector bias heater off
	11:02:35	662.58	852	Solar port heaters off
	11:03:07	663.12	821	Elevate to internal source (stow)
	11:03:39	663.65	851	Solar port heaters on
	11:05:47	665.78	882	Detector bias heater on at level 1
	11:07:55	667.92	892	SWICS on at level 3
	11:11:07	671.12	881	Detector bias heater off
	11:14:51	674.85	862	WFOV BB heater on at temp. 1
	11:15:23	675.38	872	MFOV BB heater on at temp. 1
	11:16:27	676.45	891	SWICS off
	11:29:47	689.78	883	Detector bias heater on at level 2
	11:31:55	691.92	893	SWICS on at level 2
	11:35:07	695.12	881	Detector bias heater off
	11:38:51	698.85	863	WFOV BB heater on at temp. 2
	11:39:23	699.38	873	MFOV BB heater on at temp. 2
	11:40:27	700.45	891	SWICS off
	11:53:47	713.78	884	Detector bias heater on at level 3



Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/04/87	11:55:55	715.92	894	SWICS on at level 1
	11:58:03	718.05	881	Detector bias heater off
	12:00:43	720.72	852	Solar port heaters off
	12:01:47	721.78	861	WFOV BB heater off
	12:02:19	722.32	871	MFOV BB heater off
	12:02:51	722.85	851	Solar port heaters on
	12:03:23	723.38	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/04/87	12:06:03	726.05	419	Address azimuth position A
	12:06:35	726.58	2xx	Data command, high byte
	12:07:07	727.12	1xx	Data command, low byte
End azimuth angle load commands (A = 163.43°).				
Begin solar calibration sequence.				
03/04/87	12:07:39	727.65	8A2	Begin solar calibration
	12:08:11	728.18	852	Solar port heaters off
	12:08:43	728.72	822	Elevate to solar ports (Sun)
	12:09:15	729.25	814	Azimuth to position A
	12:09:47	729.78	882	Detector bias heater on at level 1
	12:19:23	739.38	851	Solar port heaters on
	12:19:55	739.92	831	SMA shutter cycle on
	12:50:51	770.85	832	SMA shutter cycle off
	12:51:23	771.38	852	Solar port heaters off
	12:51:55	771.92	813	Azimuth to 180°
	12:52:27	772.45	881	Detector bias heater off
	13:02:03	782.05	823	Elevate to nadir (Earth)
	13:02:35	782.58	851	Solar port heaters on
End solar calibration sequence.				
Begin preinternal calibration sequence.				
03/18/87	10:50:19	650.32	821	Elevate to internal source (stow)
	10:50:51	650.85	862	WFOV BB heater on at temp. 1
	11:06:19	666.32	872	MFOV BB heater on at temp. 1
	12:33:15	753.25	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/18/87	12:33:47	753.78	8A1	Begin internal calibration
	12:34:19	754.32	881	Detector bias heater off
	12:34:51	754.85	852	Solar port heaters off
	12:35:23	755.38	821	Elevate to internal source (stow)
	12:35:55	755.92	851	Solar port heaters on
	12:38:03	758.05	882	Detector bias heater on at level 1
	12:40:11	760.18	892	SWICS on at level 3
	12:43:23	763.38	881	Detector bias heater off
	12:47:07	767.12	862	WFOV BB heater on at temp. 1
	12:47:39	767.65	872	MFOV BB heater on at temp. 1

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/18/87	12:48:43	768.72	891	SWICS off
	13:02:03	782.05	883	Detector bias heater on at level 2
	13:04:11	784.18	893	SWICS on at level 2
	13:07:23	787.38	881	Detector bias heater off
	13:11:07	791.12	863	WFOV BB heater on at temp. 2
	13:11:39	791.65	873	MFOV BB heater on at temp. 2
	13:12:43	792.72	891	SWICS off
	13:26:03	806.05	884	Detector bias heater on at level 3
	13:28:11	808.18	894	SWICS on at level 1
	13:30:19	810.32	881	Detector bias heater off
	13:33:15	813.25	852	Solar port heaters off
	13:34:03	814.05	861	WFOV BB heater off
	13:34:35	814.58	871	MFOV BB heater off
	13:35:07	815.12	851	Solar port heaters on
	13:35:39	815.65	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
03/18/87	13:38:19	818.32	419	Address azimuth position A
	13:38:51	818.85	2xx	Data command, high byte
	13:39:23	819.38	1xx	Data command, low byte
End azimuth angle load commands ( $A = 160.65^\circ$ ).				
Begin solar calibration sequence.				
03/18/87	13:39:55	819.92	8A2	Begin solar calibration
	13:40:27	820.45	852	Solar port heaters off
	13:40:59	820.98	822	Elevate to solar ports (Sun)
	13:41:31	821.52	814	Azimuth to position A
	13:42:03	822.05	882	Detector bias heater on at level 1
	13:51:39	831.65	851	Solar port heaters on
	13:52:11	832.18	831	SMA shutter cycle on
	14:23:07	863.12	832	SMA shutter cycle off
	14:23:39	863.65	852	Solar port heaters off
	14:24:11	864.18	813	Azimuth to $180^\circ$
	14:24:43	864.72	881	Detector bias heater off
	14:34:19	874.32	823	Elevate to badir (Earth)
	14:34:51	874.85	851	Solar port heaters on
End solar calibration sequence.				
Begin preinternal calibration sequence.				
04/01/87	10:42:19	642.32	821	Elevate to internal source (stow)
	10:42:51	642.85	862	WFOV BB heater on at temp. 1
	10:58:19	658.32	872	MFOV BB heater on at temp. 1
	12:25:15	745.25	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
04/01/87	12:25:47	745.78	8A1	Begin internal calibration
	12:26:19	746.32	881	Detector bias heater off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/01/87	12:26:51	746.85	852	Solar port heaters off
	12:27:23	747.38	821	Elevate to internal source (stow)
	12:27:55	747.92	851	Solar port heaters on
	12:30:03	750.05	882	Detector bias heater on at level 1
	12:32:11	752.18	892	SWICS on at level 3
	12:35:23	755.38	881	Detector bias heater off
	12:39:07	759.12	862	WFOV BB heater on at temp. 1
	12:39:39	759.65	872	MFOV BB heater on at temp. 1
	12:40:43	760.72	891	SWICS off
	12:54:03	774.05	883	Detector bias heater on at level 2
	12:56:11	776.18	893	SWICS on at level 2
	12:59:23	779.38	881	Detector bias heater off
	13:03:07	783.12	863	WFOV BB heater on at temp. 2
	13:03:39	783.65	873	MFOV BB heater on at temp. 2
	13:04:43	784.72	891	SWICS off
	13:18:03	798.05	884	Detector bias heater on at level 3
	13:20:11	800.18	894	SWICS on at level 1
	13:22:19	802.32	881	Detector bias heater off
	13:24:59	804.98	852	Solar port heaters off
	13:26:03	806.05	861	WFOV BB heater off
	13:26:35	806.58	871	MFOV BB heater off
	13:27:07	807.12	851	Solar port heaters on
	13:27:39	807.65	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
04/01/87	13:30:19	810.32	419	Address azimuth position A
	13:30:51	810.85	2xx	Data command, high byte
	13:31:23	811.38	1xx	Data command, low byte
End azimuth angle load commands (A = 156.75°).				
Begin solar calibration sequence.				
04/01/87	13:31:55	811.92	8A2	Begin solar calibration
	13:32:27	812.45	852	Solar port heaters off
	13:32:59	812.98	822	Elevate to solar ports (Sun)
	13:33:31	813.52	814	Azimuth to position A
	13:34:03	814.05	882	Detector bias heater on at level 1
	13:43:39	823.65	851	Solar port heaters on
	13:44:11	824.18	831	SMA shutter cycle on
	14:15:07	855.12	832	SMA shutter cycle off
	14:15:39	855.65	852	Solar port heaters off
	14:16:11	856.18	813	Azimuth to 180°
	14:16:43	856.72	881	Detector bias heater off
	14:26:19	866.32	823	Elevate to nadir (Earth)
	14:26:51	866.85	851	Solar port heaters on
End solar calibration sequence.				

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin preinternal calibration sequence.				
04/15/87	11:30:51	690.85	872	MFOV BB heater on at temp. 1
	12:18:19	738.32	823	Elevate to nadir (Earth)
Some commands obscured by data dropout. End preinternal calibration sequence. Begin internal calibration sequence.				
04/15/87	12:18:51	738.85	8A1	Begin internal calibration
	12:19:23	739.38	881	Detector bias heater off
	12:19:55	739.92	852	Solar port heaters off
	12:20:27	740.45	821	Elevate to internal source (stow)
	12:20:59	740.98	851	Solar port heaters on
	12:23:07	743.12	882	Detector bias heater on at level 1
	12:25:15	745.25	892	SWICS on at level 3
	12:28:27	748.45	881	Detector bias heater off
	12:32:11	752.18	862	WFOV BB heater on at temp. 1
	12:32:43	752.72	872	MFOV BB heater on at temp. 1
	12:33:47	753.78	891	SWICS off
	12:47:07	767.12	883	Detector bias heater on at level 2
	12:49:15	769.25	893	SWICS on at level 2
	12:52:27	772.45	881	Detector bias heater off
	12:56:11	776.18	863	WFOV BB heater on at temp. 2
	12:56:43	776.72	873	MFOV BB heater on at temp. 2
	12:57:47	777.78	891	SWICS off
	13:11:07	791.12	884	Detector bias heater on at level 3
	13:13:15	793.25	894	SWICS on at level 1
	13:15:23	795.38	881	Detector bias heater off
	13:18:03	798.05	852	Solar port heaters off
	13:19:07	799.12	861	WFOV BB heater off
	13:19:39	799.65	871	MFOV BB heater off
	13:20:11	800.18	851	Solar port heaters on
	13:20:43	800.72	891	SWICS off
End internal calibration sequence. Begin azimuth angle load commands for solar calibration.				
04/15/87	13:23:23	803.38	419	Address azimuth position A
	13:23:55	803.92	2xx	Data command, high byte
	13:24:27	804.45	1xx	Data command, low byte
End azimuth angle load commands (A = 152.55°). Begin solar calibration sequence.				
04/15/87	13:24:59	804.98	8A2	Begin solar calibration
	13:25:31	805.52	852	Solar port heaters off
	13:26:03	806.05	822	Elevate to solar ports (Sun)
	13:26:35	806.58	814	Azimuth to position A
	13:27:07	807.12	882	Detector bias heater on at level 1
	13:36:43	816.72	851	Solar port heaters on
	13:37:15	817.25	831	SMA shutter cycle on

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/15/87	14:08:11	848.18	832	SMA shutter cycle off
	14:08:43	848.72	852	Solar port heaters off
	14:09:15	849.25	813	Azimuth to 180°
	14:09:47	849.78	881	Detector bias heater off
	14:19:23	859.38	823	Elevate to nadir (Earth)
	14:19:55	859.92	851	Solar port heaters on
SMA shutter stuck in open mode; calibration still successful.				
End solar calibration sequence.				
New blackbody set point temperatures (30.97°C).				
04/21/87	12:30:36	750.60	461	Address MFOV BB temp. 1
	12:31:08	751.13	2xx	Data command, high byte
	12:31:40	751.67	1xx	Data command, low byte
	12:32:12	752.20	463	Address MFOV BB temp. 2
	12:32:44	752.73	2xx	Data command, high byte
	12:33:16	753.27	1xx	Data command, low byte
	12:33:48	753.80	465	Address WFOV BB temp. 1
	12:34:20	754.33	2xx	Data command, high byte
	12:34:52	754.87	1xx	Data command, low byte
	12:35:24	755.40	467	Address WFOV BB temp. 2
	12:35:56	755.93	2xx	Data command, high byte
	12:36:28	756.47	1xx	Data command, low byte
Begin preinternal calibration sequence.				
04/29/87	10:29:32	629.53	821	Elevate to internal source (stow)
	10:30:04	630.07	862	WFOV BB heater on at temp. 1
	10:45:32	645.53	872	MFOV BB heater on at temp. 1
	12:12:28	732.47	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
04/29/87	12:13:00	733.00	8A1	Begin internal calibration
	12:13:32	733.53	881	Detector bias heater off
	12:14:04	734.07	852	Solar port heaters off
	12:14:36	734.60	821	Elevate to internal source (stow)
	12:15:08	735.13	851	Solar port heaters on
	12:17:16	737.27	882	Detector bias heater on at level 1
	12:19:24	739.40	892	SWICS on at level 3
	12:22:36	742.60	881	Detector bias heater off
	12:26:20	746.33	862	WFOV BB heater on at temp. 1
	12:26:52	746.87	872	MFOV BB heater on at temp. 1
	12:27:56	747.93	891	SWICS off
	12:41:16	761.27	883	Detector bias heater on at level 2
	12:43:24	763.40	893	SWICS on at level 2
	12:46:36	766.60	881	Detector bias heater off
	12:50:20	770.33	863	WFOV BB heater on at temp. 2
	12:50:52	770.87	873	MFOV BB heater on at temp. 2
	12:51:56	771.93	891	SWICS off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/29/87	13:05:16	785.27	884	Detector bias heater on at level 3
	13:07:24	787.40	894	SWICS on at level 1
	13:09:32	789.53	881	Detector bias heater off
	13:12:12	792.20	852	Solar port heaters off
	13:13:16	793.27	861	WFOV BB heater off
	13:13:48	793.80	871	MFOV BB heater off
	13:14:20	794.33	851	Solar port heaters on
	13:14:52	794.87	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for solar calibration.				
04/29/87	13:17:32	797.53	419	Address azimuth position A
	13:18:04	798.07	2xx	Data command, high byte
	13:18:36	798.60	1xx	Data command, low byte
End azimuth angle load commands (A = 148.65°).				
Begin solar calibration sequence.				
04/29/87	13:19:08	799.13	8A2	Begin solar calibration
	13:19:40	799.67	852	Solar port heaters off
	13:20:12	800.20	822	Elevate to solar ports (Sun)
	13:20:44	800.73	814	Azimuth to position A
	13:21:16	801.27	882	Detector bias heater on at level 1
	13:30:52	810.87	851	Solar port heaters on
	13:31:24	811.40	831	SMA shutter cycle on
	14:02:20	842.33	832	SMA shutter cycle off
	14:02:52	842.87	852	Solar port heaters off
	14:03:24	843.40	813	Azimuth to 180°
	14:03:56	843.93	881	Detector bias heater Off
	14:13:32	853.53	823	Elevate to nadir (Earth)
	14:14:04	854.07	851	Solar port heaters on
End solar calibration sequence.				
06/10/87	13:30:52	810.87	823	Elevate to nadir (Earth)
Begin internal calibration sequence.				
06/10/87	13:31:24	811.40	8A1	Begin internal calibration
	13:31:56	811.93	881	Detector bias heater off
	13:32:28	812.47	852	Solar port heaters off
	13:33:00	813.00	821	Elevate to internal source (stow)
	13:33:32	813.53	851	Solar port heaters on
	13:35:40	815.67	882	Detector bias heater on at level 1
	13:37:48	817.80	892	SWICS on at level 3
	13:41:00	821.00	881	Detector bias heater off
	13:44:44	824.73	862	WFOV BB heater on at temp. 1
	13:45:16	825.27	872	MFOV BB heater on at temp. 1
	13:46:20	826.33	891	SWICS off
	13:59:40	839.67	883	Detector bias heater on at level 2
	14:01:48	841.80	893	SWICS on at level 2
	14:05:00	845.00	881	Detector bias heater off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/10/87	14:08:44	848.73	863	WFOV BB heater on at temp. 2
	14:09:16	849.27	873	MFOV BB heater on at temp. 2
	14:10:20	850.33	891	SWICS off
	14:23:40	863.67	884	Detector bias heater on at level 3
	14:25:48	865.80	894	SWICS on at level 1
	14:27:56	867.93	881	Detector bias heater off
	14:30:36	870.60	852	Solar port heaters off
	14:31:40	871.67	861	WFOV BB heater off
	14:32:12	872.20	871	MFOV BB heater off
	14:32:44	872.73	851	Solar port heaters on
	14:33:16	873.27	891	SWICS off
End internal calibration sequence.				
06/10/87	14:35:56	875.93	823	Elevate to nadir (Earth)
Begin internal calibration sequence.				
06/24/87	13:31:24	811.40	8A1	Begin internal calibration
	13:31:56	811.93	881	Detector bias heater off
	13:32:28	812.47	852	Solar port heaters off
	13:33:00	813.00	821	Elevate to internal source (stow)
	13:33:32	813.53	851	Solar port heaters on
	13:35:40	815.67	882	Detector bias heater on at level 1
	13:37:48	817.80	892	SWICS on at level 3
	13:41:00	821.00	881	Detector bias heater off
	13:44:44	824.73	862	WFOV BB heater on at temp. 1
	13:45:16	825.27	872	MFOV BB heater on at temp. 1
	13:46:20	826.33	891	SWICS off
	13:59:40	839.67	883	Detector bias heater on at level 2
	14:01:48	841.80	893	SWICS on at level 2
	14:05:00	845.00	881	Detector bias heater off
	14:08:44	848.73	863	WFOV BB heater on at temp. 2
	14:09:16	849.27	873	MFOV BB heater on at temp. 2
	14:10:20	850.33	891	SWICS off
	14:23:40	863.67	884	Detector bias heater on at level 3
	14:25:48	865.80	894	SWICS on at level 1
	14:27:56	867.93	881	Detector bias heater off
	14:30:36	870.60	852	Solar port heaters off
	14:31:40	871.67	861	WFOV BB heater off
	14:32:12	872.20	871	MFOV BB heater off
	14:32:44	872.73	851	Solar port heaters on
	14:33:16	873.27	891	SWICS off
End internal calibration sequence.				
06/24/87	14:35:56	875.93	823	Elevate to nadir (Earth)
Begin internal calibration sequence.				
Some commands obscured by data dropout.				
07/08/87	13:51:08	831.13	891	SWICS off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/08/87	13:59:40	839.67	883	Detector bias heater on at level 2
	14:01:48	841.80	893	SWICS on at level 2
	14:05:00	845.00	881	Detector bias heater off
	14:08:44	848.73	863	WFOV BB heater on at temp. 2
	14:09:16	849.27	873	MFOV BB heater on at temp. 2
	14:10:20	850.33	891	SWICS off
	14:23:40	863.67	884	Detector bias heater on at level 3
	14:25:48	865.80	894	SWICS on at level 1
	14:27:56	867.93	881	Detector bias heater off
	14:30:36	870.60	852	Solar port heaters off
	14:31:40	871.67	861	WFOV BB heater off
	14:32:12	872.20	871	MFOV BB heater off
	14:32:44	872.73	851	Solar port heaters on
	14:33:16	873.27	891	SWICS off
End internal calibration sequence.				
07/08/87	14:35:56	875.93	823	Elevate to nadir (Earth)
Begin internal calibration sequence.				
07/22/87	13:31:24	811.40	8A1	Begin internal calibration
	13:31:56	811.93	881	Detector bias heater off
	13:32:28	812.47	852	Solar port heaters off
	13:33:00	813.00	821	Elevate to internal source (stow)
	13:33:32	813.53	851	Solar port heaters on
	13:35:40	815.67	882	Detector bias heater on at level 1
	13:37:48	817.80	892	SWICS on at level 3
	13:41:00	821.00	881	Detector bias heater off
	13:44:44	824.73	862	WFOV BB heater on at temp. 1
	13:45:16	825.27	872	MFOV BB heater on at temp. 1
	13:46:20	826.33	891	SWICS off
	13:59:40	839.67	883	Detector bias heater on at level 2
	14:01:48	841.80	893	SWICS on at level 2
	14:05:00	845.00	881	Detector bias heater off
	14:08:44	848.73	863	WFOV BB heater on at temp. 2
	14:09:16	849.27	873	MFOV BB heater on at temp. 2
	14:10:20	850.33	891	SWICS off
	14:23:40	863.67	884	Detector bias heater on at level 3
	14:25:48	865.80	894	SWICS on at level 1
	14:27:56	867.93	881	Detector bias heater off
	14:30:36	870.60	852	Solar port heaters off
	14:31:40	871.67	861	WFOV BB heater off
	14:32:12	872.20	871	MFOV BB heater off
	14:32:44	872.73	851	Solar port heaters on
	14:33:16	873.27	891	SWICS off
End internal calibration sequence.				
07/22/87	14:35:56	875.93	823	Elevate to nadir (Earth)



Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
08/05/87	13:31:24	811.40	8A1	Begin internal calibration
	13:31:56	811.93	881	Detector bias heater off
	13:32:28	812.47	852	Solar port heaters off
	13:33:00	813.00	821	Elevate to internal source (stow)
	13:33:32	813.53	851	Solar port heaters on
	13:35:40	815.67	882	Detector bias heater on at level 1
	13:37:48	817.80	892	SWICS on at level 3
	13:41:00	821.00	881	Detector bias heater off
	13:44:44	824.73	862	WFOV BB heater on at temp. 1
	13:45:16	825.27	872	MFOV BB heater on at temp. 1
	13:46:20	826.33	891	SWICS off
	13:59:40	839.67	883	Detector bias heater on at level 2
	14:01:48	841.80	893	SWICS on at level 2
	14:05:00	845.00	881	Detector bias heater off
	14:08:44	848.73	863	WFOV BB heater on at temp. 2
	14:09:16	849.27	873	MFOV BB heater on at temp. 2
	14:10:20	850.33	891	SWICS off
	14:23:40	863.67	884	Detector bias heater on at level 3
	14:25:48	865.80	894	SWICS on at level 1
	14:27:56	867.93	881	Detector bias heater off
	14:30:36	870.60	852	Solar port heaters off
	14:31:40	871.67	861	WFOV BB heater off
	14:32:12	872.20	871	MFOV BB heater off
	14:32:44	872.73	851	Solar port heaters on
	14:33:16	873.27	891	SWICS off
End internal calibration sequence.				
08/05/87	14:35:56	875.93	823	Elevate to nadir (Earth)
Begin preinternal calibration sequence.				
08/19/87	13:03:40	783.67	821	Elevate to internal source (stow)
	13:04:12	784.20	862	WFOV BB heater on at temp. 1
	13:19:40	799.67	872	MFOV BB heater on at temp. 1
	14:46:36	886.60	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
08/19/87	14:47:08	887.13	8A1	Begin internal calibration
	14:47:40	887.67	881	Detector bias heater off
	14:48:12	888.20	852	Solar port heaters off
	14:48:44	888.73	821	Elevate to internal source (stow)
	14:49:16	889.27	851	Solar port heaters on
	14:51:24	891.40	882	Detector bias heater on at level 1
	14:53:32	893.53	892	SWICS on at level 3
	14:56:44	896.73	881	Detector bias heater off
	15:00:28	900.47	862	WFOV BB heater on at temp. 1
	15:01:00	901.00	872	MFOV BB heater on at temp. 1

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/19/87	15:02:04	902.07	891	SWICS off
	15:15:24	915.40	883	Detector bias heater on at level 2
	15:17:32	917.53	893	SWICS on at level 2
	15:20:44	920.73	881	Detector bias heater off
	15:24:28	924.47	863	WFOV BB heater on at temp. 2
	15:25:00	925.00	873	MFOV BB heater on at temp. 2
	15:26:04	926.07	891	SWICS off
	15:39:24	939.40	884	Detector bias heater on at level 3
	15:41:32	941.53	894	SWICS on at level 1
	15:43:40	943.67	881	Detector bias heater off
	15:46:20	946.33	852	Solar port heaters off
	15:47:24	947.40	861	WFOV BB heater off
	15:47:56	947.93	871	MFOV BB heater off
	15:48:28	948.47	851	Solar port heaters on
	15:49:00	949.00	891	SWICS off
End internal calibration sequence.				
08/19/87	15:59:40	959.67	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
08/19/87	16:03:56	963.93	419	Address azimuth position A
	16:04:28	964.47	2xx	Data command, high byte
	16:05:00	965.00	1xx	Data command, low byte
End azimuth angle load commands ( $A = 150.75^\circ$ ).				
Begin modified solar calibration sequence.				
08/19/87	16:06:04	966.07	822	Elevate to solar ports (Sun)
	16:06:36	966.60	814	Azimuth to position A
	16:07:08	967.13	883	Detector bias heater on at level 2
	16:23:08	983.13	831	SMA shutter cycle on
	16:57:48	1017.80	832	SMA shutter cycle off
	16:58:20	1018.33	813	Azimuth to $180^\circ$
	16:59:24	1019.40	881	Detector bias heater off
	17:09:32	1029.53	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
09/02/87	13:02:36	782.60	821	Elevate to internal source (stow)
	13:03:08	783.13	862	WFOV BB heater on at temp. 1
	13:18:36	798.60	872	MFOV BB heater on at temp. 1
	14:45:32	885.53	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/02/87	14:46:04	886.07	8A1	Begin internal calibration
	14:46:36	886.60	881	Detector bias heater off
	14:47:08	887.13	852	Solar port heaters off
	14:47:40	887.67	821	Elevate to internal source (stow)
	14:48:12	888.20	851	Solar port heaters on
	14:50:20	890.33	882	Detector bias heater on at level 1

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/02/87	14:52:28	892.47	892	SWICS on at level 3
	14:55:40	895.67	881	Detector bias heater off
	14:59:24	899.40	862	WFOV BB heater on at temp. 1
	14:59:56	899.93	872	MFOV BB heater on at temp. 1
	15:01:00	901.00	891	SWICS off
	15:14:20	914.33	883	Detector bias heater on at level 2
	15:16:28	916.47	893	SWICS on at level 2
	15:19:40	919.67	881	Detector bias heater off
	15:23:24	923.40	863	WFOV BB heater on at temp. 2
	15:23:56	923.93	873	MFOV BB heater on at temp. 2
	15:25:00	925.00	891	SWICS off
	15:38:20	938.33	884	Detector bias heater on at level 3
	15:40:28	940.47	894	SWICS on at level 1
	15:42:36	942.60	881	Detector bias heater off
	15:45:16	945.27	852	Solar port heaters off
	15:46:20	946.33	861	WFOV BB heater off
	15:46:52	946.87	871	MFOV BB heater off
	15:47:24	947.40	851	Solar port heaters on
	15:47:56	947.93	891	SWICS off
End internal calibration sequence.				
09/02/87	15:58:36	958.60	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
09/02/87	16:02:52	962.87	419	Address azimuth position A
	16:03:24	963.40	2xx	Data command, high byte
	16:03:56	963.93	1xx	Data command, low byte
End azimuth angle load commands ( $A = 153.15^\circ$ ).				
Begin modified solar calibration sequence.				
09/02/87	16:05:00	965.00	822	Elevate to solar ports (Sun)
	16:05:32	965.53	814	Azimuth to position A
	16:06:04	966.07	883	Detector bias heater on at level 2
	16:22:04	982.07	831	SMA shutter cycle on
	16:56:44	1016.73	832	SMA shutter cycle off
	16:57:16	1017.27	813	Azimuth to $180^\circ$
	16:58:20	1018.33	881	Detector bias heater off
	17:08:28	1028.47	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
09/16/87	13:02:04	782.07	821	Elevate to internal source (stow)
	13:02:36	782.60	862	WFOV BB heater on at temp. 1
	13:18:04	798.07	872	MFOV BB heater on at temp. 1
	14:45:00	885.00	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/16/87	14:45:32	885.53	8A1	Begin internal calibration
	14:46:04	886.07	881	Detector bias heater off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/16/87	14:46:36	886.60	852	Solar port heaters off
	14:47:08	887.13	821	Elevate to internal source (stow)
	14:47:40	887.67	851	Solar port heaters on
	14:49:48	889.80	882	Detector bias heater on at level 1
	14:51:56	891.93	892	SWICS on at level 3
	14:55:08	895.13	881	Detector bias heater off
	14:58:52	898.87	862	WFOV BB heater on at temp. 1
	14:59:24	899.40	872	MFOV BB heater on at temp. 1
	15:00:28	900.47	891	SWICS off
	15:13:48	913.80	883	Detector bias heater on at level 2
	15:15:56	915.93	893	SWICS on at level 2
	15:19:08	919.13	881	Detector bias heater off
	15:22:52	922.87	863	WFOV BB heater on at temp. 2
	15:23:24	923.40	873	MFOV BB heater on at temp. 2
	15:24:28	924.47	891	SWICS off
	15:37:48	937.80	884	Detector bias heater on at level 3
	15:39:56	939.93	894	SWICS on at level 1
	15:42:04	942.07	881	Detector bias heater off
	15:44:44	944.73	852	Solar port heaters off
	15:45:48	945.80	861	WFOV BB heater off
	15:46:20	946.33	871	MFOV BB heater off
	15:46:52	946.87	851	Solar port heaters on
	15:47:24	947.40	891	SWICS off
End internal calibration sequence.				
09/16/87	15:58:04	958.07	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
09/16/87	16:02:20	962.33	419	Address azimuth position A
	16:02:52	962.87	2xx	Data command, high byte
	16:03:24	963.40	1xx	Data command, low byte
End azimuth angle load commands (A = 154.80°).				
Begin modified solar calibration sequence.				
09/16/87	16:04:28	964.47	822	Elevate to solar ports (Sun)
	16:05:00	965.00	814	Azimuth to position A
	16:05:32	965.53	883	Detector bias heater on at level 2
	16:21:32	981.53	831	SMA shutter cycle on
	16:56:12	1016.20	832	SMA shutter cycle off
	16:56:44	1016.73	813	Azimuth to 180°
	16:57:48	1017.80	881	Detector bias heater off
	17:07:56	1027.93	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
09/30/87	13:01:32	781.53	821	Elevate to internal source (stow)
	13:02:04	782.07	862	WFOV BB heater on at temp. 1
	13:17:32	797.53	872	MFOV BB heater on at temp. 1

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
	14:44:28	884.47	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
09/30/87	14:45:00	885.00	8A1	Begin internal calibration
	14:45:32	885.53	881	Detector bias heater off
	14:46:04	886.07	852	Solar port heaters off
	14:46:36	886.60	821	Elevate to internal source (stow)
	14:47:08	887.13	851	Solar port heaters on
	14:49:16	889.27	882	Detector bias heater on at level 1
	14:51:24	891.40	892	SWICS on at level 3
	14:54:36	894.60	881	Detector bias heater off
	14:58:20	898.33	862	WFOV BB heater on at temp. 1
	14:58:52	898.87	872	MFOV BB heater on at temp. 1
	14:59:56	899.93	891	SWICS off
	15:13:16	913.27	883	Detector bias heater on at level 2
	15:15:24	915.40	893	SWICS on at level 2
	15:18:36	918.60	881	Detector bias heater off
	15:22:20	922.33	863	WFOV BB heater on at temp. 2
	15:22:52	922.87	873	MFOV BB heater on at temp. 2
	15:23:56	923.93	891	SWICS off
	15:37:16	937.27	884	Detector bias heater on at level 3
	15:39:24	939.40	894	SWICS on at level 1
	15:41:32	941.53	881	Detector bias heater off
	15:44:12	944.20	852	Solar port heaters off
	15:45:16	945.27	861	WFOV BB heater off
	15:45:48	945.80	871	MFOV BB heater off
	15:46:20	946.33	851	Solar port heaters on
	15:46:52	946.87	891	SWICS off
End internal calibration sequence.				
09/30/87	15:57:32	957.53	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
09/30/87	16:01:48	961.80	419	Address azimuth position A
	16:02:20	962.33	2xx	Data command, high byte
	16:02:52	962.87	1xx	Data command, low byte
End azimuth angle load commands ( $A = 155.48^\circ$ ).				
Begin modified solar calibration sequence.				
09/30/87	16:03:56	963.93	822	Elevate to solar ports (Sun)
	16:04:28	964.47	814	Azimuth to position A
	16:05:00	965.00	883	Detector bias heater on at level 2
	16:21:00	981.00	831	SMA shutter cycle on
	16:55:40	1015.67	832	SMA shutter cycle off
	16:56:12	1016.20	813	Azimuth to $180^\circ$
	16:57:16	1017.27	881	Detector bias heater off
	17:07:24	1027.40	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin preinternal calibration sequence.				
10/14/87	13:01:00	781.00	821	Elevate to internal source (stow)
	13:01:32	781.53	862	WFOV BB heater on at temp. 1
	13:17:00	797.00	872	MFOV BB heater on at temp. 1
	14:43:56	883.93	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
10/14/87	14:44:28	884.47	8A1	Begin internal calibration
	14:45:00	885.00	881	Detector bias heater off
	14:45:32	885.53	852	Solar port heaters off
	14:46:04	886.07	821	Elevate to internal source (stow)
	14:46:36	886.00	851	Solar port heaters on
	14:48:44	888.73	882	Detector bias heater on at level 1
	14:50:52	890.87	892	SWICS on at level 3
	14:54:04	894.07	881	Detector bias heater off
	14:57:48	897.80	862	WFOV BB heater on at temp. 1
	14:58:20	898.33	872	MFOV BB heater on at temp. 1
	14:59:24	899.40	891	SWICS off
	15:12:44	912.73	883	Detector bias heater on at level 2
	15:14:52	914.87	893	SWICS on at level 2
	15:18:04	918.07	881	Detector bias heater off
	15:21:48	921.80	863	WFOV BB heater on at temp. 2
	15:22:20	922.33	873	MFOV BB heater on at temp. 2
	15:23:24	923.40	891	SWICS off
	15:36:44	936.73	884	Detector bias heater on at level 3
	15:38:52	938.87	894	SWICS on at level 1
	15:41:00	941.00	881	Detector bias heater off
	15:43:40	943.67	852	Solar port heaters off
	15:44:44	944.73	861	WFOV BB heater off
	15:45:16	945.27	871	MFOV BB heater off
	15:45:48	945.80	851	Solar port heaters on
	15:46:20	946.33	891	SWICS off
End internal calibration sequence				
10/14/87	15:57:00	957.00	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
10/14/87	16:01:16	961.27	419	Address azimuth position A
	16:01:48	961.80	2xx	Data command, high byte
	16:02:20	962.33	1xx	Data command, low byte
End azimuth angle load commands (A = 154.43°).				
Begin modified solar calibration sequence.				
10/14/87	16:03:24	963.40	822	Elevate to solar ports (Sun)
	16:03:56	963.93	814	Azimuth to position A
	16:04:28	964.47	883	Detector bias heater on at level 2
	16:20:28	980.47	831	SMA shutter cycle on
	16:55:08	1015.13	832	SMA shutter cycle off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/14/87	16:55:40	1015.67	813	Azimuth to 180°
	16:56:44	1016.73	881	Detector bias heater off
	17:06:52	1026.87	823	Elevate to nadir (Earth)
End modified solar calibration sequence. Begin preinternal calibration sequence.				
10/28/87	12:59:24	779.40	821	Elevate to internal source (stow)
	12:59:56	779.93	862	WFOV BB heater on at temp. 1
	13:15:24	795.40	872	MFOV BB heater on at temp. 1
	14:42:20	882.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
10/28/87	14:42:52	882.87	8A1	Begin internal calibration
	14:43:24	883.40	881	Detector bias heater off
	14:43:56	883.93	852	Solar port heaters off
	14:44:28	884.47	821	Elevate to internal source (stow)
	14:45:00	885.00	851	Solar port heaters on
	14:47:08	887.13	882	Detector bias heater on at level 1
	14:49:16	889.27	892	SWICS on at level 3
	14:52:28	892.47	881	Detector bias heater off
	14:56:12	896.20	862	WFOV BB heater on at temp. 1
	14:56:44	896.73	872	MFOV BB heater on at temp. 1
	14:57:48	897.80	891	SWICS off
	15:11:08	911.13	883	Detector bias heater on at level 2
	15:13:16	913.27	893	SWICS on at level 2
	15:16:28	916.47	881	Detector bias heater off
	15:20:12	920.20	863	WFOV BB heater on at temp. 2
	15:20:44	920.73	873	MFOV BB heater on at temp. 2
	15:21:48	921.80	891	SWICS off
	15:35:08	935.13	884	Detector bias heater on at level 3
	15:37:16	937.27	894	SWICS on at level 1
	15:39:24	939.40	881	Detector bias heater off
	15:42:04	942.07	852	Solar port heaters off
	15:43:08	943.13	861	WFOV BB heater off
	15:43:40	943.67	871	MFOV BB heater off
	15:44:12	944.20	851	Solar port heaters on
	15:44:44	944.73	891	SWICS off
End internal calibration sequence.				
10/28/87	15:55:24	955.40	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
10/28/87	15:59:40	959.67	419	Address azimuth position A
	16:00:12	960.20	2xx	Data command, high byte
	16:00:44	960.73	1xx	Data command, low byte
End azimuth angle load commands (A = 154.43°).				

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin modified solar calibration sequence.				
10/28/87	16:01:48	961.80	822	Elevate to solar ports (Sun)
	16:02:20	962.33	814	Azimuth to position A
	16:02:52	962.87	883	Detector bias heater on at level 2
	16:18:52	978.87	831	SMA shutter cycle on
	16:53:32	1013.53	832	SMA shutter cycle off
	16:54:04	1014.07	813	Azimuth to 180°
	16:55:08	1015.13	881	Detector bias heater off
	17:05:16	1025.27	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
11/11/87	12:57:48	777.80	821	Elevate to internal source (stow)
	12:58:20	778.33	862	WFOV BB heater on at temp. 1
	13:13:48	793.80	872	MFOV BB heater on at temp. 1
	14:40:44	880.73	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
11/11/87	14:41:16	881.27	8A1	Begin internal calibration
	14:41:48	881.80	881	Detector bias heater off
	14:42:20	882.33	852	Solar port heaters off
	14:42:52	882.87	821	Elevate to internal source (stow)
	14:43:24	883.40	851	Solar port heaters on
	14:45:32	885.53	882	Detector bias heater on at level 1
	14:47:40	887.67	892	SWICS on at level 3
	14:50:52	890.87	881	Detector bias heater off
	14:54:36	894.60	862	WFOV BB heater on at temp. 1
	14:55:08	895.13	872	MFOV BB heater on at temp. 1
	14:56:12	896.20	891	SWICS off
	15:09:32	909.53	883	Detector bias heater on at level 2
	15:11:40	911.67	893	SWICS on at level 2
	15:14:52	914.87	881	Detector bias heater off
	15:18:36	918.60	863	WFOV BB heater on at temp. 2
	15:19:08	919.13	873	MFOV BB heater on at temp. 2
	15:20:12	920.20	891	SWICS off
	15:33:32	933.53	884	Detector bias heater on at level 3
	15:35:40	935.67	894	SWICS on at level 1
	15:37:48	937.80	881	Detector bias heater off
	15:40:28	940.47	852	Solar port heaters off
	15:41:32	941.53	861	WFOV BB heater off
	15:42:04	942.07	871	MFOV BB heater off
	15:42:36	942.60	851	Solar port heaters on
	15:43:08	943.13	891	SWICS off
End internal calibration sequence.				
11/11/87	15:53:48	953.80	823	Elevate to nadir (Earth)



Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin azimuth angle load commands for solar calibration.				
11/11/87	15:58:04	958.07	419	Address azimuth position A
	15:58:36	958.60	2xx	Data command, high byte
	15:59:08	959.13	1xx	Data command, low byte
End azimuth angle load commands (A = 153.60°).				
Begin modified solar calibration sequence.				
11/11/87	16:00:12	960.20	822	Elevate to solar ports (Sun)
	16:00:44	960.73	814	Azimuth to position A
	16:01:16	961.27	883	Detector bias heater on at level 2
	16:17:16	977.27	831	SMA shutter cycle on
	16:51:56	1011.93	832	SMA shutter cycle off
	16:52:28	1012.47	813	Azimuth to 180°
	16:53:32	1013.53	881	Detector bias heater off
	17:03:40	1023.67	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
11/25/87	12:55:40	775.67	821	Elevate to internal source (stow)
	12:56:12	776.20	862	WFOV BB heater on at temp. 1
	13:11:41	791.68	872	MFOV BB heater on at temp. 1
	14:38:37	878.62	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
11/25/87	14:39:09	879.15	8A1	Begin internal calibration
	14:39:41	879.68	881	Detector bias heater off
	14:40:13	880.22	852	Solar port heaters off
	14:40:45	880.75	821	Elevate to internal source (stow)
	14:41:17	881.28	851	Solar port heaters on
	14:43:25	883.42	882	Detector bias heater on at level 1
	14:45:33	885.55	892	SWICS on at level 3
	14:48:45	888.75	881	Detector bias heater off
	14:52:29	892.48	862	WFOV BB heater on at temp. 1
	14:53:01	893.02	872	MFOV BB heater on at temp. 1
	14:54:05	894.08	891	SWICS off
	15:07:25	907.42	883	Detector bias heater on at level 2
	15:09:33	909.55	893	SWICS on at level 2
	15:12:45	912.75	881	Detector bias heater off
	15:16:29	916.48	863	WFOV BB heater on at temp. 2
	15:17:01	917.02	873	MFOV BB heater on at temp. 2
	15:18:05	918.08	891	SWICS off
	15:31:25	931.42	884	Detector bias heater on at level 3
	15:33:33	933.55	894	SWICS on at level 1
	15:35:41	935.68	881	Detector bias heater off
	15:38:21	938.35	852	Solar port heaters off
	15:39:25	939.42	861	WFOV BB heater off
	15:39:57	939.95	871	MFOV BB heater off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/25/87	15:40:29	940.48	851	Solar port heaters on
	15:41:01	941.02	891	SWICS off
End internal calibration sequence.				
11/25/87	15:51:41	951.68	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
11/25/87	15:55:57	955.95	419	Address azimuth position A
	15:56:29	956.48	2xx	Data command, high byte
	15:57:01	957.02	1xx	Data command, low byte
End azimuth angle load commands ( $A = 153.23^\circ$ ).				
Begin modified solar calibration sequence.				
11/25/87	15:58:05	958.08	822	Elevate to solar ports (Sun)
	15:58:37	958.62	814	Azimuth to position A
	15:59:09	959.15	883	Detector bias heater on at level 2
	16:15:09	975.15	831	SMA shutter cycle on
	16:49:49	1009.82	832	SMA shutter cycle off
	16:50:21	1010.35	813	Azimuth to $180^\circ$
	16:51:25	1011.42	881	Detector bias heater off
	17:01:33	1021.55	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
12/09/87	12:53:01	773.02	821	Elevate to internal source (stow)
	12:53:33	773.55	862	WFOV BB heater on at temp. 1
	13:09:01	789.02	872	MFOV BB heater on at temp. 1
	14:35:57	875.95	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
12/09/87	14:36:29	876.48	8A1	Begin internal calibration
	14:37:01	877.02	881	Detector bias heater off
	14:37:33	877.55	852	Solar port heaters off
	14:38:05	878.08	821	Elevate to internal source (stow)
	14:38:37	878.62	851	Solar port heaters on
	14:40:45	880.75	882	Detector bias heater on at level 1
	14:42:53	882.88	892	SWICS on at level 3
	14:46:05	886.08	881	Detector bias heater off
	14:49:49	889.82	862	WFOV BB heater on at temp. 1
	14:50:21	890.35	872	MFOV BB heater on at temp. 1
	14:51:25	891.42	891	SWICS off
	15:04:45	904.75	883	Detector bias heater on at level 2
	15:06:53	906.88	893	SWICS on at level 2
	15:10:05	910.08	881	Detector bias heater off
	15:13:49	913.82	863	WFOV BB heater on at temp. 2
	15:14:21	914.35	873	MFOV BB heater on at temp. 2
	15:15:25	915.42	891	SWICS off
	15:28:45	928.75	884	Detector bias heater on at level 3
	15:30:53	930.88	894	SWICS on at level 1

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/09/87	15:33:01	933.02	881	Detector bias heater off
	15:35:41	935.68	852	Solar port heaters off
	15:36:45	936.75	861	WFOV BB heater off
	15:37:17	937.28	871	MFOV BB heater off
	15:37:49	937.82	851	Solar port heaters on
	15:38:21	938.35	891	SWICS off
End internal calibration sequence.				
12/09/87	15:49:01	949.02	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
12/09/87	15:53:17	953.28	419	Address azimuth position A
	15:53:49	953.82	2xx	Data command, high byte
	15:54:21	954.35	1xx	Data command, low byte
End azimuth angle load commands ( $A = 153.60^\circ$ ).				
Begin modified solar calibration sequence.				
12/09/87	15:55:25	955.42	822	Elevate to solar ports (Sun)
	15:55:57	955.95	814	Azimuth to position A
	15:56:29	956.48	883	Detector bias heater on at level 2
	16:12:29	972.48	831	SMA shutter cycle on
	16:47:09	1007.15	832	SMA shutter cycle off
	16:47:41	1007.68	813	Azimuth to $180^\circ$
	16:48:45	1008.75	881	Detector bias heater off
	16:58:53	1018.88	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
12/23/87	12:49:49	769.82	821	Elevate to internal source (stow)
	12:50:21	770.35	862	WFOV BB heater on at temp. 1
	13:05:49	785.82	872	MFOV BB heater on at temp. 1
	14:32:45	872.75	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
12/23/87	14:33:17	873.28	8A1	Begin internal calibration
	14:33:49	873.82	881	Detector bias heater off
	14:34:21	874.35	852	Solar port heaters off
	14:34:53	874.88	821	Elevate to internal source (stow)
	14:35:25	875.42	851	Solar port heaters on
	14:37:33	877.55	882	Detector bias heater on at level 1
	14:39:41	879.68	892	SWICS on at level 3
	14:42:53	882.88	881	Detector bias heater off
	14:46:37	886.62	862	WFOV BB heater on at temp. 1
	14:47:09	887.15	872	MFOV BB heater on at temp. 1
	14:48:13	888.22	891	SWICS off
	15:01:33	901.55	883	Detector bias heater on at level 2
	15:03:41	903.68	893	SWICS on at level 2
	15:06:53	906.88	881	Detector bias heater off
	15:10:37	910.62	863	WFOV BB heater on at temp. 2

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/23/87	15:11:09	911.15	873	MFOV BB heater on at temp. 2
	15:12:13	912.22	891	SWICS off
	15:25:33	925.55	884	Detector bias heater on at level 3
	15:27:41	927.68	894	SWICS on at level 1
	15:29:49	929.82	881	Detector bias heater off
	15:32:29	932.48	852	Solar port heaters off
	15:33:33	933.55	861	WFOV BB heater off
	15:34:05	934.08	871	MFOV BB heater off
	15:34:37	934.62	851	Solar port heaters on
	15:35:09	935.15	891	SWICS off
End internal calibration sequence.				
12/23/87	15:45:49	945.82	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
12/23/87	15:50:05	950.08	419	Address azimuth position A
	15:50:37	950.62	2xx	data command, high byte
	15:51:09	951.15	1xx	data command, low byte
End azimuth angle load commands (A = 154.80°).				
Begin modified solar calibration sequence.				
12/23/87	15:52:13	952.22	822	Elevate to solar ports (Sun)
	15:52:45	952.75	814	Azimuth to position A
	15:53:17	953.28	883	Detector bias heater on at level 2
	16:09:17	969.28	831	SMA shutter cycle on
	16:43:57	1003.95	832	SMA shutter cycle off
	16:44:29	1004.48	813	Azimuth to 180°
	16:45:33	1005.55	881	Detector bias heater off
	16:55:41	1015.68	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
01/06/88	12:45:32	765.53	821	Elevate to internal source (stow)
	12:46:04	766.07	862	WFOV BB heater on at temp. 1
	13:01:32	781.53	872	MFOV BB heater on at temp. 1
	14:28:28	868.47	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
01/06/88	14:29:00	869.00	8A1	Begin internal calibration
	14:29:32	869.53	881	Detector bias heater off
	14:30:04	870.07	852	Solar port heaters off
	14:30:36	870.60	821	Elevate to internal source (stow)
	14:31:08	871.13	851	Solar port heaters on
	14:33:16	873.27	882	Detector bias heater on at level 1
	14:35:24	875.40	892	SWICS on at level 3
	14:38:36	878.60	881	Detector bias heater off
	14:42:20	882.33	862	WFOV BB heater on at temp. 1
	14:42:52	882.87	872	MFOV BB heater on at temp. 1
	14:43:56	883.93	891	SWICS off

Table 11. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/06/88	14:57:16	897.27	883	Detector bias heater on at level 2
	14:59:24	899.40	893	SWICS on at level 2
	15:02:36	902.60	881	Detector bias heater off
	15:06:20	906.33	863	WFOV BB heater on at temp. 2
	15:06:52	906.87	873	MFOV BB heater on at temp. 2
	15:07:56	907.93	891	SWICS off
	15:21:16	921.27	884	Detector bias heater on at level 3
	15:23:24	923.40	894	SWICS on at level 1
	15:25:32	925.53	881	Detector bias heater off
	15:28:12	928.20	852	Solar port heaters off
	15:29:16	929.27	861	WFOV BB heater off
	15:29:48	929.80	871	MFOV BB heater off
	15:30:20	930.33	851	Solar port heaters on
	15:30:52	930.87	891	SWICS off
End internal calibration sequence.				
01/06/88	15:41:32	941.53	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
01/06/88	15:45:48	945.80	419	Address azimuth position A
	15:46:20	946.33	2xx	Data command, high byte
	15:46:52	946.87	1xx	Data command, low byte
End azimuth angle load commands ( $A = 156.83^\circ$ ).				
Begin modified solar calibration sequence.				
01/06/88	15:47:56	947.93	822	Elevate to solar ports (Sun)
	15:48:28	948.47	814	Azimuth to position A
	15:49:00	949.00	883	Detector bias heater on at level 2
	16:05:00	965.00	831	SMA shutter cycle on
	16:39:40	999.67	832	SMA shutter cycle off
	16:40:12	1000.20	813	Azimuth to $180^\circ$
	16:41:16	1001.27	881	Detector bias heater off
	16:51:24	1011.40	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
01/20/88	12:41:16	761.27	821	Elevate to internal source (stow)
	12:41:48	761.80	862	WFOV BB heater on at temp. 1
	12:57:16	777.27	872	MFOV BB heater on at temp. 1
	14:24:12	864.20	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
01/20/88	14:24:44	864.73	8A1	Begin internal calibration
	14:25:16	865.27	881	Detector bias heater off
	14:25:48	865.80	852	Solar port heaters off
	14:26:20	866.33	821	Elevate to internal source (stow)
	14:26:52	866.87	851	Solar port heaters on
	14:29:00	869.00	882	Detector bias heater on at level 1
	14:31:08	871.13	892	SWICS on at level 3

Table 11. Continued

(a) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/20/88	14:34:20	874.33	881	Detector bias heater off
	14:38:04	878.07	862	WFOV BB heater on at temp. 1
	14:38:36	878.60	872	MFOV BB heater on at temp. 1
	14:39:40	879.67	891	SWICS off
	14:53:00	893.00	883	Detector bias heater on at level 2
	14:55:08	895.13	893	SWICS on at level 2
	14:58:20	898.33	881	Detector bias heater off
	15:02:04	902.07	863	WFOV BB heater on at temp. 2
	15:02:36	902.60	873	MFOV BB heater on at temp. 2
	15:03:40	903.67	891	SWICS off
	15:17:00	917.00	884	Detector bias heater on at level 3
	15:19:08	919.13	894	SWICS on at level 1
	15:21:16	921.27	881	Detector bias heater off
	15:23:56	923.93	852	Solar port heaters off
	15:25:00	925.00	861	WFOV BB heater off
	15:25:32	925.53	871	MFOV BB heater off
	15:26:04	926.07	851	Solar port heaters on
	15:26:36	926.60	891	SWICS off
End internal calibration sequence.				
01/20/88	15:37:16	937.27	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
01/20/88	15:41:32	941.53	419	Address azimuth position A
	15:42:04	942.07	2xx	Data command, high byte
	15:42:36	942.60	1xx	Data command, low byte
End azimuth angle load commands (A = 159.30°).				
Begin modified solar calibration sequence.				
01/20/88	15:43:40	943.67	822	Elevate to solar ports (Sun)
	15:44:12	944.20	814	Azimuth to position A
	15:44:44	944.73	883	Detector bias heater on at level 2
	16:00:44	960.73	831	SMA shutter cycle on
	16:35:24	995.40	832	SMA shutter cycle off
	16:35:56	995.93	813	Azimuth to 180°
	16:37:00	997.00	881	Detector bias heater off
	16:47:08	1007.13	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				

Table 11. Continued

(b) February 1988 through January 1989

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin preinternal calibration sequence				
02/03/88	12:35:24	755.40	821	Elevate to internal source (stow)
	12:35:56	755.93	862	WFOV BB heater on at temp. 1
	12:51:24	771.40	872	MFOV BB heater on at temp. 1
	14:18:20	858.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
02/03/88	14:18:52	858.87	8A1	Begin internal calibration
	14:19:24	859.40	881	Detector bias heater off
	14:19:56	859.93	852	Solar port heaters off
	14:20:28	860.47	821	Elevate to internal source (stow)
	14:21:00	861.00	851	Solar port heaters on
	14:23:08	863.13	882	Detector bias heater on at level 1
	14:25:16	865.27	892	SWICS on at level 3
	14:28:28	868.47	881	Detector bias heater off
	14:32:12	872.20	862	WFOV BB heater on at temp. 1
	14:32:44	872.73	872	MFOV BB heater on at temp. 1
	14:33:48	873.80	891	SWICS off
	14:47:08	887.13	883	Detector bias heater on at level 2
	14:49:16	889.27	893	SWICS on at level 2
	14:52:28	892.47	881	Detector bias heater off
	14:56:12	896.20	863	WFOV BB heater on at temp. 2
	14:56:44	896.73	873	MFOV BB heater on at temp. 2
	14:57:48	897.80	891	SWICS off
	15:14:20	914.33	894	SWICS on at level 1
	15:15:24	915.40	881	Detector bias heater off
	15:18:04	918.07	852	Solar port heaters off
	15:19:08	919.13	861	WFOV BB heater off
	15:19:40	919.67	871	MFOV BB heater off
	15:20:12	920.20	851	Solar port heaters on
	15:20:44	920.73	891	SWICS off
End internal calibration sequence.				
One record obscured by data dropout.				
02/03/88	15:31:24	931.40	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
02/03/88	15:35:40	935.67	419	Address azimuth position A
	15:36:12	936.20	2xx	Data command, high byte
	15:36:44	936.73	1xx	Data command, low byte
End azimuth angle load commands (A = 161.63°).				
Begin modified solar calibration sequence.				
02/03/88	15:37:48	937.80	822	Elevate to solar ports (Sun)
	15:38:20	938.33	814	Azimuth to position A
	15:38:52	938.87	883	Detector bias heater on at level 2
	15:54:52	954.87	831	SMA shutter cycle on

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/03/88	16:29:32	989.53	832	SMA shutter cycle off
	16:30:04	990.07	813	Azimuth to 180°
	16:31:08	991.13	881	Detector bias heater off
	16:41:16	1001.27	823	Elevate to nadir (Earth)
End modified solar calibration sequence. Begin preinternal calibration sequence.				
02/17/88	12:27:56	747.93	821	Elevate to internal source (stow)
	12:28:28	748.47	862	WFOV BB heater on at temp. 1
	12:43:56	763.93	872	MFOV BB heater on at temp. 1
	14:10:52	850.87	823	Elevate to nadir (Earth)
End preinternal calibration sequence. Begin internal calibration sequence.				
02/17/88	14:11:24	851.40	8A1	Begin internal calibration
	14:11:56	851.93	881	Detector bias heater off
	14:12:28	852.47	852	Solar port heaters off
	14:13:00	853.00	821	Elevate to internal source (stow)
	14:13:32	853.53	851	Solar port heaters on
	14:15:40	855.67	882	Detector bias heater on at level 1
	14:17:48	857.80	892	SWICS on at level 3
	14:21:00	861.00	881	Detector bias heater off
	14:24:44	864.73	862	WFOV BB heater on at temp. 1
	14:25:16	865.27	872	MFOV BB heater on at temp. 1
	14:26:20	866.33	891	SWICS off
	14:39:40	879.67	883	Detector bias heater on at level 2
	14:41:48	881.80	893	SWICS on at level 2
	14:45:00	885.00	881	Detector bias heater off
	14:48:44	888.73	863	WFOV BB heater on at temp. 2
	14:49:16	889.27	873	MFOV BB heater on at temp. 2
	14:50:20	890.33	891	SWICS off
	15:03:40	903.67	884	Detector bias heater on at level 3
	15:05:48	905.80	894	SWICS on at level 1
	15:07:56	907.93	881	Detector bias heater off
	15:10:36	910.60	852	Solar port heaters off
	15:11:40	911.67	861	WFOV BB heater off
	15:12:12	912.20	871	MFOV BB heater off
	15:12:44	912.73	851	Solar port heaters on
	15:13:16	913.27	891	SWICS off
End internal calibration sequence.				
02/17/88	15:23:56	923.93	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
02/17/88	15:28:12	928.20	419	Address azimuth position A
	15:28:44	928.73	2xx	Data command, high byte
	15:29:16	929.27	1xx	Data command, low byte
End azimuth angle load commands (A = 162.98°).				



Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin modified solar calibration sequence.				
02/17/88	15:30:20	930.33	822	Elevate to solar ports (Sun)
	15:30:52	930.87	814	Azimuth to position A
	15:31:24	931.40	883	Detector bias heater on at level 2
	15:47:24	947.40	831	SMA shutter cycle on
	16:22:04	982.07	832	SMA shutter cycle off
	16:22:36	982.60	813	Azimuth to 180°
	16:23:40	983.67	881	Detector bias heater off
	16:33:48	993.80	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
03/02/88	12:19:24	739.40	821	Elevate to internal source (stow)
	12:19:56	739.93	862	WFOV BB heater on at temp. 1
	12:35:24	755.40	872	MFOV BB heater on at temp. 1
	14:02:20	842.33	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/02/88	14:02:52	842.87	8A1	Begin internal calibration
	14:03:24	843.40	881	Detector bias heater off
	14:03:56	843.93	852	Solar port heaters off
	14:04:28	844.47	821	Elevate to internal source (stow)
	14:05:00	845.00	851	Solar port heaters on
	14:07:08	847.13	882	Detector bias heater on at level 1
	14:09:16	849.27	892	SWICS on at level 3
	14:12:28	852.47	881	Detector bias heater off
	14:16:12	856.20	862	WFOV BB heater on at temp. 1
	14:16:44	856.73	872	MFOV BB heater on at temp. 1
	14:17:48	857.80	891	SWICS off
	14:31:08	871.13	883	Detector bias heater on at level 2
	14:33:16	873.27	893	SWICS on at level 2
	14:36:28	876.47	881	Detector bias heater off
	14:40:12	880.20	863	WFOV BB heater on at temp. 2
	14:40:44	880.73	873	MFOV BB heater on at temp. 2
	14:41:48	881.80	891	SWICS off
	14:55:08	895.13	884	Detector bias heater on at level 3
	14:57:16	897.27	894	SWICS on at level 1
	14:59:24	899.40	881	Detector bias heater off
	15:02:04	902.07	852	Solar port heaters off
	15:03:08	903.13	861	WFOV BB heater off
	15:03:40	903.67	871	MFOV BB heater off
	15:04:12	904.20	851	Solar port heaters on
	15:04:44	904.73	891	SWICS off
End internal calibration sequence.				
03/02/88	15:15:24	915.40	823	Elevate to nadir (Earth)

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin azimuth angle load commands for solar calibration.				
03/02/88	15:19:40	919.67	419	Address azimuth position A
	15:20:12	920.20	2xx	Data command, high byte
	15:20:44	920.73	1xx	Data command, low byte
End azimuth angle load commands (A = 162.38°).				
Begin modified solar calibration sequence.				
03/02/88	15:21:48	921.80	822	Elevate to solar ports (Sun)
	15:22:20	922.33	814	Azimuth to position A
	15:22:52	922.87	883	Detector bias heater on at level 2
	15:38:52	938.87	831	SMA shutter cycle on
	16:13:32	973.53	832	SMA shutter cycle off
	16:14:04	974.07	813	Azimuth to 180°
	16:15:08	975.13	881	Detector bias heater off
	16:25:16	985.27	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
03/16/88	12:09:48	729.80	821	Elevate to internal source (stow)
	12:10:20	730.33	862	WFOV BB heater on at temp. 1
	12:25:48	745.80	872	MFOV BB heater on at temp. 1
	13:52:44	832.73	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/16/88	13:53:16	833.27	8A1	Begin internal calibration
	13:53:48	833.80	881	Detector bias heater off
	13:54:20	834.33	852	Solar port heaters off
	13:54:52	834.87	821	Elevate to internal source (stow)
	13:55:24	835.40	851	Solar port heaters on
	13:57:32	837.53	882	Detector bias heater on at level 1
	13:59:40	839.67	892	SWICS on at level 3
	14:02:52	842.87	881	Detector bias heater off
	14:06:36	846.60	862	WFOV BB heater on at temp. 1
	14:07:08	847.13	872	MFOV BB heater on at temp. 1
	14:08:12	848.20	891	SWICS off
	14:21:32	861.53	883	Detector bias heater on at level 2
	14:23:40	863.67	893	SWICS on at level 2
	14:26:52	866.87	881	Detector bias heater off
	14:30:36	870.60	863	WFOV BB heater on at temp. 2
	14:31:08	871.13	873	MFOV BB heater on at temp. 2
	14:32:12	872.20	891	SWICS off
	14:45:32	885.53	884	Detector bias heater on at level 3
	14:47:40	887.67	894	SWICS on at level 1
	14:49:48	889.80	881	Detector bias heater off
	14:52:28	892.47	852	Solar port heaters off
	14:53:32	893.53	861	WFOV BB heater off
	14:54:04	894.07	871	MFOV BB heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/16/88	14:54:36	894.60	851	Solar port heaters on
	14:55:08	895.13	891	SWICS off
End internal calibration sequence.				
03/16/88	15:05:48	905.80	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
03/16/88	15:10:04	910.07	419	Address azimuth position A
	15:10:36	910.60	2xx	Data command, high byte
	15:11:08	911.13	1xx	Data command, low byte
End azimuth angle load commands ( $A = 159.98^\circ$ ).				
Begin modified solar calibration sequence.				
03/16/88	15:12:12	912.20	822	Elevate to solar ports (Sun)
	15:12:44	912.73	814	Azimuth to position A
	15:13:16	913.27	883	Detector bias heater on at level 2
	15:29:16	929.27	831	SMA shutter cycle on
	16:03:56	963.93	832	SMA shutter cycle off
	16:04:28	964.47	813	Azimuth to $180^\circ$
	16:05:32	965.53	881	Detector bias heater off
	16:15:40	975.67	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
03/30/88	12:01:16	721.27	821	Elevate to internal source (stow)
	12:01:48	721.80	862	WFOV BB heater on at temp. 1
	12:17:16	737.27	872	MFOV BB heater on at temp. 1
	13:44:12	824.20	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
03/30/88	13:44:44	824.73	8A1	Begin internal calibration
	13:45:16	825.27	881	Detector bias heater off
	13:45:48	825.80	852	Solar port heaters off
	13:46:20	826.33	821	Elevate to internal source (stow)
	13:46:52	826.87	851	Solar port heaters on
	13:49:00	829.00	882	Detector bias heater on at level 1
	13:51:08	831.13	892	SWICS on at level 3
	13:54:20	834.33	881	Detector bias heater off
	13:58:04	838.07	862	WFOV BB heater on at temp. 1
	13:58:36	838.60	872	MFOV BB heater on at temp. 1
	13:59:40	839.67	891	SWICS off
	14:13:00	853.00	883	Detector bias heater on at level 2
	14:15:08	855.13	893	SWICS on at level 2
	14:18:20	858.33	881	Detector bias heater off
	14:22:04	862.07	863	WFOV BB heater on at temp. 2
	14:22:36	862.60	873	MFOV BB heater on at temp. 2
	14:23:40	863.67	891	SWICS off
	14:37:00	877.00	884	Detector bias heater on at level 3
	14:39:08	879.13	894	SWICS on at level 1

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/30/88	14:41:16	881.27	881	Detector bias heater off
	14:43:56	883.93	852	Solar port heaters off
	14:45:00	885.00	861	WFOV BB heater off
	14:45:32	885.53	871	MFOV BB heater off
	14:46:04	886.07	851	Solar port heaters on
	14:46:36	886.60	891	SWICS off
End internal calibration sequence.				
03/30/88	14:57:16	897.27	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
03/30/88	15:01:32	901.53	419	Address azimuth position A
	15:02:04	902.07	2xx	Data command, high byte
	15:02:36	902.60	1xx	Data command, low byte
End azimuth angle load commands (A = 156.30°).				
Begin modified solar calibration sequence.				
03/30/88	15:03:40	903.67	822	Elevate to solar ports (Sun)
	15:04:12	904.20	814	Azimuth to position A
	15:04:44	904.73	883	Detector bias heater on at level 2
	15:20:44	920.73	831	SMA shutter cycle on
	15:55:24	955.40	832	SMA shutter cycle off
	15:55:56	955.93	813	Azimuth to 180°
	15:57:00	957.00	881	Detector bias heater off
	16:07:08	967.13	823	Elevate to nadir (Earth)
End modified solar calibration sequence.				
Begin preinternal calibration sequence.				
04/13/88	11:53:16	713.27	821	Elevate to internal source (stow)
	11:53:48	713.80	862	WFOV BB heater on at temp. 1
	12:09:16	729.27	872	MFOV BB heater on at temp. 1
	13:36:12	816.20	823	Elevate to nadir (Earth)
End preinternal calibration sequence.				
Begin internal calibration sequence.				
04/13/88	13:36:44	816.73	8A1	Begin internal calibration
	13:37:16	817.27	881	Detector bias heater off
	13:37:48	817.80	852	Solar port heaters off
	13:38:20	818.33	821	Elevate to internal source (stow)
	13:38:52	818.87	851	Solar port heaters on
	13:41:00	821.00	882	Detector bias heater on at level 1
	13:43:08	823.13	892	SWICS on at level 3
	13:46:20	826.33	881	Detector bias heater off
	13:50:04	830.07	862	WFOV BB heater on at temp. 1
	13:50:36	830.60	872	MFOV BB heater on at temp. 1
	13:51:40	831.67	891	SWICS off
	14:05:00	845.00	883	Detector bias heater on at level 2
	14:07:08	847.13	893	SWICS on at level 2
	14:10:20	850.33	881	Detector bias heater off
	14:14:04	854.07	863	WFOV BB heater on at temp. 2

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/13/88	14:14:36	854.60	873	MFOV BB heater on at temp. 2
	14:15:40	855.67	891	SWICS off
	14:29:00	869.00	884	Detector bias heater on at level 3
	14:31:08	871.13	894	SWICS on at level 1
	14:33:16	873.27	881	Detector bias heater off
	14:35:56	875.93	852	Solar port heaters off
	14:37:00	877.00	861	WFOV BB heater off
	14:37:32	877.53	871	MFOV BB heater off
	14:38:04	878.07	851	Solar port heaters on
	14:38:36	878.60	891	SWICS off
End internal calibration sequence.				
04/13/88	14:49:16	889.27	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
04/13/88	14:53:32	893.53	419	Address azimuth position A
	14:54:04	894.07	2xx	Data command, high byte
	14:54:36	894.60	1xx	Data command, low byte
End azimuth angle load commands (A = 152.18°).				
Begin modified solar calibration sequence.				
04/13/88	14:55:40	895.67	822	Elevate to solar ports (Sun)
	14:56:12	896.20	814	Azimuth to position A
	14:56:44	896.73	883	Detector bias heater on at level 2
	15:12:44	912.73	831	SMA shutter cycle on
	15:47:24	947.40	832	SMA shutter cycle off
	15:47:56	947.93	813	Azimuth to 180°
	15:49:00	949.00	881	Detector bias heater off
End modified solar calibration sequence.				
04/13/88	15:59:08	959.13	823	Elevate to nadir (Earth)
Modified calibration sequence implemented:				
Begin revised preinternal calibration sequence.				
04/27/88	08:47:40	527.67	882	Detector bias heater on at level 1
	08:50:20	530.33	881	Detector bias heater off
	08:50:52	530.87	883	Detector bias heater on at level 2
	08:53:32	533.53	881	Detector bias heater off
	08:54:04	534.07	884	Detector bias heater on at level 3
	08:56:44	536.73	881	Detector bias heater off
	09:29:48	569.80	821	Elevate to internal source (stow)
	09:44:12	584.20	862	WFOV BB heater on at temp. 1
	10:00:12	600.20	872	MFOV BB heater on at temp. 1
	11:11:08	671.13	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
04/27/88	11:12:12	672.20	881	Detector bias heater off
	11:12:44	672.73	852	Solar port heaters off
	11:13:16	673.27	821	Elevate to internal source (stow)
	11:13:48	673.80	851	Solar port heaters on

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/27/88	11:15:56	675.93	882	Detector bias heater on at level 1
	11:19:40	679.67	892	SWICS on at level 3
	11:22:52	682.87	881	Detector bias heater off
	11:26:36	686.60	862	WFOV BB heater on at temp. 1
	11:27:08	687.13	872	MFOV BB heater on at temp. 1
	11:28:12	688.20	891	SWICS off
	11:41:32	701.53	883	Detector bias heater on at level 2
	11:45:16	705.27	893	SWICS on at level 2
	11:48:28	708.47	881	Detector bias heater off
	11:52:12	712.20	863	WFOV BB heater on at temp. 2
	11:52:44	712.73	873	MFOV BB heater on at temp. 2
	11:53:48	713.80	891	SWICS off
	12:07:08	727.13	884	Detector bias heater on at level 3
	12:10:52	730.87	894	SWICS on at level 1
	12:13:00	733.00	881	Detector bias heater off
	12:15:40	735.67	852	Solar port heaters off
	12:16:44	736.73	861	WFOV BB heater off
	12:17:16	737.27	871	MFOV BB heater off
	12:17:48	737.80	851	Solar port heaters on
	12:18:20	738.33	891	SWICS off
End internal calibration sequence.				
04/27/88	12:29:00	749.00	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
04/27/88	12:33:16	753.27	419	Address azimuth position A
	12:33:48	753.80	2xx	Data command, high byte
	12:34:20	754.33	1xx	Data command, low byte
End azimuth angle load commands ( $A = 148.43^\circ$ ).				
Begin revised solar calibration sequence.				
04/27/88	12:35:24	755.40	822	Elevate to solar ports (Sun)
	13:07:24	787.40	814	Azimuth to position A
	13:08:28	788.47	883	Detector bias heater on at level 2
	13:24:28	804.47	831	SMA shutter cycle on
	13:59:40	839.67	832	SMA shutter cycle off
	14:00:12	840.20	881	Detector bias heater off
	14:19:24	859.40	882	Detector bias heater on at level 1
	14:22:04	862.07	881	Detector bias heater off
	14:22:36	862.60	883	Detector bias heater on at level 2
	14:25:16	865.27	881	Detector bias heater off
	14:25:48	865.80	884	Detector bias heater on at level 3
	14:28:28	868.47	881	Detector bias heater off
	14:29:00	869.00	852	Solar port heaters off
	14:45:00	885.00	851	Solar port heaters on
	14:45:32	885.53	821	Elevate to internal source (stow)
	15:01:32	901.53	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/27/88	15:49:32	949.53	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
04/27/88	17:13:48	1033.80	882	Detector bias heater on at level 1
	17:16:28	1036.47	881	Detector bias heater off
	17:17:00	1037.00	883	Detector bias heater on at level 2
	17:19:40	1039.67	881	Detector bias heater off
	17:20:12	1040.20	884	Detector bias heater on at level 3
	17:22:52	1042.87	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
05/11/88	10:22:04	622.07	882	Detector bias heater on at level 1
	10:24:44	624.73	881	Detector bias heater off
	10:25:16	625.27	883	Detector bias heater on at level 2
	10:27:56	627.93	881	Detector bias heater off
	10:28:28	628.47	884	Detector bias heater on at level 3
	10:31:08	631.13	881	Detector bias heater off
	11:02:36	662.60	821	Elevate to internal source (stow)
	11:18:36	678.60	862	WFOV BB heater on at temp. 1
	11:34:36	694.60	872	MFOV BB heater on at temp. 1
	12:45:32	765.53	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/11/88	12:46:36	766.60	881	Detector bias heater off
	12:47:08	767.13	852	Solar port heaters off
	12:47:40	767.67	821	Elevate to internal source (stow)
	12:48:12	768.20	851	Solar port heaters on
	12:50:20	770.33	882	Detector bias heater on at level 1
	12:54:04	774.07	892	SWICS on at level 3
	12:57:16	777.27	881	Detector bias heater off
	13:01:00	781.00	862	WFOV BB heater on at temp. 1
	13:01:32	781.53	872	MFOV BB heater on at temp. 1
	13:02:36	782.60	891	SWICS off
	13:15:56	795.93	883	Detector bias heater on at level 2
	13:19:40	799.67	893	SWICS on at level 2
	13:22:52	802.87	881	Detector bias heater off
	13:26:36	806.60	863	WFOV BB heater on at temp. 2
	13:27:08	807.13	873	MFOV BB heater on at temp. 2
	13:28:12	808.20	891	SWICS off
	13:41:32	821.53	884	Detector bias heater on at level 3
	13:45:16	825.27	894	SWICS on at level 1
	13:47:24	827.40	881	Detector bias heater off
	13:50:04	830.07	852	Solar port heaters off
	13:51:08	831.13	861	WFOV BB heater off
	13:51:40	831.67	871	MFOV BB heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/11/88	13:52:12	832.20	851	Solar port heaters on
	13:52:44	832.73	891	SWICS off
End internal calibration sequence.				
05/11/88	14:03:24	843.40	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
05/11/88	14:07:40	847.67	419	Address azimuth position A
	14:08:12	848.20	2xx	Data command, high byte
	14:08:44	848.73	1xx	Data command, low byte
End azimuth angle load commands ( $A = 145.20^\circ$ ).				
Begin revised solar calibration sequence.				
05/11/88	14:09:48	849.80	822	Elevate to solar ports (Sun)
	14:41:48	881.80	814	Azimuth to position A
	14:42:52	882.87	883	Detector bias heater on at level 2
	14:58:52	898.87	831	SMA shutter cycle on
	15:34:04	934.07	832	SMA shutter cycle off
	15:34:36	934.60	881	Detector bias heater off
	15:53:48	953.80	882	Detector bias heater on at level 1
	15:56:28	956.47	881	Detector bias heater off
	15:57:00	957.00	883	Detector bias heater on at level 2
	15:59:40	959.67	881	Detector bias heater off
	16:00:12	960.20	884	Detector bias heater on at level 3
	16:02:52	962.87	881	Detector bias heater off
	16:03:24	963.40	852	Solar port heaters off
	16:19:24	979.40	851	Solar port heaters on
	16:19:56	979.93	821	Elevate to internal source (stow)
	16:35:56	995.93	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
05/11/88	17:23:56	1043.93	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/11/88	18:48:12	1128.20	882	Detector bias heater on at level 1
	18:50:52	1130.87	881	Detector bias heater off
	18:51:24	1131.40	883	Detector bias heater on at level 2
	18:54:04	1134.07	881	Detector bias heater off
	18:54:36	1134.60	884	Detector bias heater on at level 3
	18:57:16	1137.27	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
05/25/88	08:34:52	514.87	882	Detector bias heater on at level 1
	08:37:32	517.53	881	Detector bias heater off
	08:38:04	518.07	883	Detector bias heater on at level 2
	08:40:44	520.73	881	Detector bias heater off
	08:41:16	521.27	884	Detector bias heater on at level 3
	08:43:56	523.93	881	Detector bias heater off
	09:15:24	555.40	821	Elevate to internal source (stow)
	09:31:24	571.40	862	WFOV BB heater on at temp. 1



Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/25/88	09:47:24	587.40	872	MFOV BB heater on at temp. 1
	10:58:20	658.33	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/25/88	10:59:24	659.40	881	Detector bias heater off
	10:59:56	659.93	852	Solar port heaters off
	11:00:28	660.47	821	Elevate to internal source (stow)
	11:01:00	661.00	851	Solar port heaters on
	11:03:08	663.13	882	Detector bias heater on at level 1
	11:06:52	666.87	892	SWICS on at level 3
	11:10:04	670.07	881	Detector bias heater off
	11:13:48	673.80	862	WFOV BB heater on at temp. 1
	11:14:20	674.33	872	MFOV BB heater on at temp. 1
	11:15:24	675.40	891	SWICS off
	11:28:44	688.73	883	Detector bias heater on at level 2
	11:32:28	692.47	893	SWICS on at level 2
	11:35:40	695.67	881	Detector bias heater off
	11:39:24	699.40	863	WFOV BB heater on at temp. 2
	11:39:56	699.93	873	MFOV BB heater on at temp. 2
	11:41:00	701.00	891	SWICS off
	11:54:20	714.33	884	Detector bias heater on at level 3
	11:58:04	718.07	894	SWICS on at level 1
	12:00:12	720.20	881	Detector bias heater off
	12:02:52	722.87	852	Solar port heaters off
	12:03:56	723.93	861	WFOV BB heater off
	12:04:28	724.47	871	MFOV BB heater off
	12:05:00	725.00	851	Solar port heaters on
	12:05:32	725.53	891	SWICS off
End internal calibration sequence.				
05/25/88	12:16:12	736.20	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
05/25/88	12:20:28	740.47	419	Address azimuth position A
	12:21:00	741.00	2xx	Data command, high byte
	12:21:32	741.53	1xx	Data command, low byte
End azimuth angle load commands ( $A = 143.03^\circ$ ).				
Begin revised solar calibration sequence.				
05/25/88	12:22:36	742.60	822	Elevate to solar ports (Sun)
	12:54:36	774.60	814	Azimuth to position A
	12:55:40	775.67	883	Detector bias heater on at level 2
	13:11:40	791.67	831	SMA shutter cycle on
	13:46:52	826.87	832	SMA shutter cycle off
	13:47:24	827.40	881	Detector bias heater off
	14:06:36	846.60	882	Detector bias heater on at level 1
	14:09:16	849.27	881	Detector bias heater off
	14:09:48	849.80	883	Detector bias heater on at level 2

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/25/88	14:12:28	852.47	881	Detector bias heater off
	14:13:00	853.00	884	Detector bias heater on at level 3
	14:15:40	855.67	881	Detector bias heater off
	14:16:12	856.20	852	Solar port heaters off
	14:32:12	872.20	851	Solar port heaters on
	14:32:44	872.73	821	Elevate to internal source (stow)
	14:48:44	888.73	813	Azimuth to 180°
End revised solar calibration sequence.				
05/25/88	15:36:44	823		Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/25/88	17:01:00	1021.00	882	Detector bias heater on at level 1
	17:03:40	1023.67	881	Detector bias heater off
	17:04:12	1024.20	883	Detector bias heater on at level 2
	17:06:52	1026.87	881	Detector bias heater off
	17:07:24	1027.40	884	Detector bias heater on at level 3
	17:10:04	1030.07	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
06/08/88	08:29:00	509.00	882	Detector bias heater on at level 1
	08:31:40	511.67	881	Detector bias heater off
	08:32:12	512.20	883	Detector bias heater on at level 2
	08:34:52	514.87	881	Detector bias heater off
	08:35:24	515.40	884	Detector bias heater on at level 3
	08:38:04	518.07	881	Detector bias heater off
	09:09:32	549.53	821	Elevate to internal source (stow)
	09:25:32	565.53	862	WFOV BB heater on at temp. 1
	09:41:32	581.53	872	MFOV BB heater on at temp. 1
	10:52:28	652.47	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/08/88	10:53:32	653.53	881	Detector bias heater off
	10:54:04	654.07	852	Solar port heaters off
	10:54:36	654.60	821	Elevate to internal source (stow)
	10:55:08	655.13	851	Solar port heaters on
	10:57:16	657.27	882	Detector bias heater on at level 1
	11:01:00	661.00	892	SWICS on at level 3
	11:04:12	664.20	881	Detector bias heater off
	11:07:56	667.93	862	WFOV BB heater on at temp. 1
	11:08:28	668.47	872	MFOV BB heater on at temp. 1
	11:09:32	669.53	891	SWICS off
	11:22:52	682.87	883	Detector bias heater on at level 2
	11:26:36	686.60	893	SWICS on at level 2
	11:29:48	689.80	881	Detector bias heater off
	11:33:32	693.53	863	WFOV BB heater on at temp. 2
	11:34:04	694.07	873	MFOV BB heater on at temp. 2

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/08/88	11:35:08	695.13	891	SWICS off
	11:48:28	708.47	884	Detector bias heater on at level 3
	11:52:12	712.20	894	SWICS on at level 1
	11:54:20	714.33	881	Detector bias heater off
	11:57:00	717.00	852	Solar port heaters off
	11:58:04	718.07	861	WFOV BB heater off
	11:58:36	718.60	871	MFOV BB heater off
	11:59:08	719.13	851	Solar port heaters on
	11:59:40	719.67	891	SWICS off
End internal calibration sequence.				
06/08/88	12:10:20	730.33	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
06/08/88	12:14:36	734.60	419	Address azimuth position A
	12:15:08	735.13	2xx	Data command, high byte
	12:15:40	735.67	1xx	Data command, low byte
End azimuth angle load commands (A = 141.90°).				
Begin revised solar calibration sequence.				
06/08/88	12:16:44	736.73	822	Elevate to solar ports (Sun)
	12:48:44	768.73	814	Azimuth to position A
	12:49:48	769.80	883	Detector bias heater on at level 2
	13:05:48	785.80	831	SMA shutter cycle on
	13:41:00	821.00	832	SMA shutter cycle off
	13:41:32	821.53	881	Detector bias heater off
	14:00:44	840.73	882	Detector bias heater on at level 1
	14:03:24	843.40	881	Detector bias heater off
	14:03:56	843.93	883	Detector bias heater on at level 2
	14:06:36	846.60	881	Detector bias heater off
	14:07:08	847.13	884	Detector bias heater on at level 3
	14:09:48	849.80	881	Detector bias heater off
	14:10:20	850.33	852	Solar port heaters off
	14:26:20	866.33	851	Solar port heaters on
	14:26:52	866.87	821	Elevate to internal source (stow)
	14:42:52	882.87	813	Azimuth to 180°
End revised solar calibration sequence.				
06/08/88	15:30:52	930.87	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/08/88	16:55:08	1015.13	882	Detector bias heater on at level 1
	16:57:48	1017.80	881	Detector bias heater off
	16:58:20	1018.33	883	Detector bias heater on at level 2
	17:01:00	1021.00	881	Detector bias heater off
	17:01:32	1021.53	884	Detector bias heater on at level 3
	17:04:12	1024.20	881	Detector bias heater off
End postcalibration sequence.				

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
06/22/88	11:46:20	706.33	882	Detector bias heater on at level 1
	11:49:00	709.00	881	Detector bias heater off
	11:49:32	709.53	883	Detector bias heater on at level 2
	11:52:12	712.20	881	Detector bias heater off
	11:52:44	712.73	884	Detector bias heater on at level 3
	11:55:24	715.40	881	Detector bias heater off
	12:26:52	746.87	821	Elevate to internal source (stow)
	12:42:52	762.87	862	WFOV BB heater on at temp. 1
	12:58:52	778.87	872	MFOV BB heater on at temp. 1
	14:09:48	849.80	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
06/22/88	14:10:52	850.87	881	Detector bias heater off
	14:11:24	851.40	852	Solar port heaters off
	14:11:56	851.93	821	Elevate to internal source (stow)
	14:12:28	852.47	851	Solar port heaters on
	14:14:36	854.60	882	Detector bias heater on at level 1
	14:18:20	858.33	892	SWICS on at level 3
	14:21:32	861.53	881	Detector bias heater off
	14:25:16	865.27	862	WFOV BB heater on at temp. 1
	14:25:48	865.80	872	MFOV BB heater on at temp. 1
	14:26:52	866.87	891	SWICS off
	14:40:12	880.20	883	Detector bias heater on at level 2
	14:43:56	883.93	893	SWICS on at level 2
	14:47:08	887.13	881	Detector bias heater off
	14:50:52	890.87	863	WFOV BB heater on at temp. 2
	14:51:24	891.40	873	MFOV BB heater on at temp. 2
	14:52:28	892.47	891	SWICS off
	15:05:48	905.80	884	Detector bias heater on at level 3
	15:09:32	909.53	894	SWICS on at level 1
	15:11:40	911.67	881	Detector bias heater off
	15:14:20	914.33	852	Solar port heaters off
	15:15:24	915.40	861	WFOV BB heater off
	15:15:56	915.93	871	MFOV BB heater off
	15:16:28	916.47	851	Solar port heaters on
	15:17:00	917.00	891	SWICS off
End internal calibration sequence.				
06/22/88	15:27:40	927.67	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
06/22/88	15:31:56	931.93	419	Address azimuth position A
	15:32:28	932.47	2xx	Data command, high byte
	15:33:00	933.00	1xx	Data command, low byte
End azimuth angle load commands (A = 141.90°).				

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised solar calibration sequence.				
06/22/88	15:34:04	934.07	822	Elevate to solar ports (Sun)
	16:06:04	966.07	814	Azimuth to position A
	16:07:08	967.13	883	Detector bias heater on at level 2
	16:23:08	983.13	831	SMA shutter cycle on
	16:58:20	1018.33	832	SMA shutter cycle off
	16:58:52	1018.87	881	Detector bias heater off
	17:18:04	1038.07	882	Detector bias heater on at level 1
	17:20:44	1040.73	881	Detector bias heater off
	17:21:16	1041.27	883	Detector bias heater on at level 2
	17:23:56	1043.93	881	Detector bias heater off
	17:24:28	1044.47	884	Detector bias heater on at level 3
	17:27:08	1047.13	881	Detector bias heater off
	17:27:40	1047.67	852	Solar port heaters off
	17:43:40	1063.67	851	Solar port heaters on
	17:44:12	1064.20	821	Elevate to internal source (stow)
	18:00:12	1080.20	813	Azimuth to 180°
End revised solar calibration sequence.				
06/22/88	18:48:12	1128.20	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
06/22/88	20:12:28	1212.47	882	Detector bias heater on at level 1
	20:15:08	1215.13	881	Detector bias heater off
	20:15:40	1215.67	883	Detector bias heater on at level 2
	20:18:20	1218.33	881	Detector bias heater off
	20:18:52	1218.87	884	Detector bias heater on at level 3
	20:21:32	1221.53	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
07/06/88	08:18:53	498.88	882	Detector bias heater on at level 1
	08:21:33	501.55	881	Detector bias heater off
	08:22:05	502.08	883	Detector bias heater on at level 2
	08:24:45	504.75	881	Detector bias heater off
	08:25:17	505.28	884	Detector bias heater on at level 3
	08:27:57	507.95	881	Detector bias heater off
	08:59:25	539.42	821	Elevate to internal source (stow)
	09:15:25	555.42	862	WFOV BB heater on at temp. 1
	09:31:25	571.42	872	MFOV BB heater on at temp. 1
	10:42:21	642.35	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
07/06/88	10:43:25	643.42	881	Detector bias heater off
	10:43:57	643.95	852	Solar port heaters off
	10:44:29	644.48	821	Elevate to internal source (stow)
	10:45:01	645.02	851	Solar port heaters on
	10:47:09	647.15	882	Detector bias heater on at level 1

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/06/88	10:50:53	650.88	892	SWICS on at level 3
	10:54:05	654.08	881	Detector bias heater off
	10:57:49	657.82	862	WFOV BB heater on at temp. 1
	10:58:21	658.35	872	MFOV BB heater on at temp. 1
	10:59:25	659.42	891	SWICS off
	11:12:45	672.75	883	Detector bias heater on at level 2
	11:16:29	676.48	893	SWICS on at level 2
	11:19:41	679.68	881	Detector bias heater off
	11:23:25	683.42	863	WFOV BB heater on at temp. 2
	11:23:57	683.95	873	MFOV BB heater on at temp. 2
	11:25:01	685.02	891	SWICS off
	11:38:21	698.35	884	Detector bias heater on at level 3
	11:42:05	702.08	894	SWICS on at level 1
	11:44:13	704.22	881	Detector bias heater off
	11:46:53	706.88	852	Solar port heaters off
	11:47:57	707.95	861	WFOV BB heater off
	11:48:29	708.48	871	MFOV BB heater off
	11:49:01	709.02	851	Solar port heaters on
	11:49:33	709.55	891	SWICS off
End internal calibration sequence.				
07/06/88	12:00:13	720.22	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
07/06/88	12:04:29	724.48	419	Address azimuth position A
	12:05:01	725.02	2xx	Data command, high byte
	12:05:33	725.55	1xx	Data command, low byte
End azimuth angle load commands ( $A = 143.03^\circ$ ).				
Begin revised solar calibration sequence.				
07/06/88	12:06:37	726.62	822	Elevate to solar ports (Sun)
	12:38:37	758.62	814	Azimuth to position A
	12:39:41	759.68	883	Detector bias heater on at level 2
	12:55:41	775.68	831	SMA shutter cycle on
	13:30:53	810.88	832	SMA shutter cycle off
	13:31:25	811.42	881	Detector bias heater off
	13:50:37	830.62	882	Detector bias heater on at level 1
	13:53:17	833.28	881	Detector bias heater off
	13:53:49	833.82	883	Detector bias heater on at level 2
	13:56:29	836.48	881	Detector bias heater off
	13:57:01	837.02	884	Detector bias heater on at level 3
	13:59:41	839.68	881	Detector bias heater off
	14:00:13	840.22	852	Solar port heaters off
	14:16:13	856.22	851	Solar port heaters on
	14:16:45	856.75	821	Elevate to internal source (stow)
(NOTE: Commands are missing because of data dropout.)				
End revised solar calibration sequence.				

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
07/20/88	08:14:05	494.08	882	Detector bias heater on at level 1
	08:16:45	496.75	881	Detector bias heater off
	08:17:17	497.28	883	Detector bias heater on at level 2
	08:19:57	499.95	881	Detector bias heater off
	08:20:29	500.48	884	Detector bias heater on at level 3
	08:23:09	503.15	881	Detector bias heater off
	08:54:37	534.62	821	Elevate to internal source (stow)
	09:10:37	550.62	862	WFOV BB heater on at temp. 1
	09:26:37	566.62	872	MFOV BB heater on at temp. 1
	10:37:33	637.55	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
07/20/88	10:38:37	638.62	881	Detector bias heater off
	10:39:09	639.15	852	Solar port heaters off
	10:39:41	639.68	821	Elevate to internal source (stow)
	10:40:13	640.22	851	Solar port heaters on
	10:42:21	642.35	882	Detector bias heater on at level 1
	10:46:05	646.08	892	SWICS on at level 3
	10:49:17	649.28	881	Detector bias heater off
	10:53:01	653.02	862	WFOV BB heater on at temp. 1
	10:53:33	653.55	872	MFOV BB heater on at temp. 1
	10:54:37	654.62	891	SWICS off
	11:07:57	667.95	883	Detector bias heater on at level 2
	11:11:41	671.68	893	SWICS on at level 2
	11:14:53	674.88	881	Detector bias heater off
	11:18:37	678.62	863	WFOV BB heater on at temp. 2
	11:19:09	679.15	873	MFOV BB heater on at temp. 2
	11:20:13	680.22	891	SWICS off
	11:33:33	693.55	884	Detector bias heater on at level 3
	11:37:17	697.28	894	SWICS on at level 1
	11:39:25	699.42	881	Detector bias heater off
	11:42:05	702.08	852	Solar port heaters off
	11:43:09	703.15	861	WFOV BB heater off
	11:43:41	703.68	871	MFOV BB heater off
	11:44:13	704.22	851	Solar port heaters on
	11:44:45	704.75	891	SWICS off
End internal calibration sequence.				
07/20/88	11:55:25	715.42	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
07/20/88	11:59:41	719.68	419	Address azimuth position A
	12:00:13	720.22	2xx	Data command, high byte
	12:00:45	720.75	1xx	Data command, low byte
End azimuth angle load commands (A = 144.98°).				

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised solar calibration sequence.				
07/20/88	12:01:49	721.82	822	Elevate to solar ports (Sun)
	12:33:49	753.82	814	Azimuth to position A
	12:34:53	754.88	883	Detector bias heater on at level 2
	12:50:53	770.88	831	SMA shutter cycle on
	13:26:05	806.08	832	SMA shutter cycle off
	13:26:37	806.62	881	Detector bias heater off
	13:45:49	825.82	882	Detector bias heater on at level 1
	13:48:29	828.48	881	Detector bias heater off
	13:49:01	829.02	883	Detector bias heater on at level 2
	13:51:41	831.68	881	Detector bias heater off
	13:52:13	832.22	884	Detector bias heater on at level 3
	13:54:53	834.88	881	Detector bias heater off
	13:55:25	835.42	852	Solar port heaters off
	14:11:25	851.42	851	Solar port heaters on
	14:11:57	851.95	821	Elevate to internal source (stow)
	14:27:57	867.95	813	Azimuth to 180°
End revised solar calibration sequence.				
07/20/88	15:15:57	915.95	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
07/20/88	16:40:13	1000.22	882	Detector bias heater on at level 1
	16:42:53	1002.88	881	Detector bias heater off
	16:43:25	1003.42	883	Detector bias heater on at level 2
	16:46:05	1006.08	881	Detector bias heater off
	16:46:37	1006.62	884	Detector bias heater on at level 3
	16:49:17	1009.28	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
08/03/88	08:10:21	490.35	882	Detector bias heater on at level 1
	08:13:01	493.02	881	Detector bias heater off
	08:13:33	493.55	883	Detector bias heater on at level 2
	08:16:13	496.22	881	Detector bias heater off
	08:16:45	496.75	884	Detector bias heater on at level 3
	08:19:25	499.42	881	Detector bias heater off
	08:50:53	530.88	821	Elevate to internal source (stow)
	09:06:53	546.88	862	WFOV BB heater on at temp. 1
	09:22:53	562.88	872	MFOV BB heater on at temp. 1
	10:33:49	633.82	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/03/88	10:34:53	634.88	881	Detector bias heater off
	10:35:25	635.42	852	Solar port heaters off
	10:35:57	635.95	821	Elevate to internal source (stow)
	10:36:29	636.48	851	Solar port heaters on
	10:38:37	638.62	882	Detector bias heater on at level 1



Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/03/88	10:42:21	642.35	892	SWICS on at level 3
	10:45:33	645.55	881	Detector bias heater off
	10:49:17	649.28	862	WFOV BB heater on at temp. 1
	10:49:49	649.82	872	MFOV BB heater on at temp. 1
	10:50:53	650.88	891	SWICS off
	11:04:13	664.22	883	Detector bias heater on at level 2
	11:07:57	667.95	893	SWICS on at level 2
	11:11:09	671.15	881	Detector bias heater off
	11:14:53	674.88	863	WFOV BB heater on at temp. 2
	11:15:25	675.42	873	MFOV BB heater on at temp. 2
	11:16:29	676.48	891	SWICS off
	11:29:49	689.82	884	Detector bias heater on at level 3
	11:33:33	693.55	894	SWICS on at level 1
	11:35:41	695.68	881	Detector bias heater off
	11:38:21	698.35	852	Solar port heaters off
	11:39:25	699.42	861	WFOV BB heater off
	11:39:57	699.95	871	MFOV BB heater off
	11:40:29	700.48	851	Solar port heaters on
	11:41:01	701.02	891	SWICS off
End internal calibration sequence.				
08/03/88	11:51:41	711.68	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
08/03/88	11:55:57	715.95	419	Address azimuth position A
	11:56:29	716.48	2xx	Data command, high byte
	11:57:01	717.02	1xx	Data command, low byte
End azimuth angle load commands ( $A = 147.53^\circ$ ).				
Begin revised solar calibration sequence.				
08/03/88	11:58:05	718.08	822	Elevate to solar ports (Sun)
	12:30:05	750.08	814	Azimuth to position A
	12:31:09	751.15	883	Detector bias heater on at level 2
	12:47:09	767.15	831	SMA shutter cycle on
	13:22:21	802.35	832	SMA shutter cycle off
	13:22:53	802.88	881	Detector bias heater off
	13:42:05	822.08	882	Detector bias heater on at level 1
	13:44:45	824.75	881	Detector bias heater off
	13:45:17	825.28	883	Detector bias heater on at level 2
	13:47:57	827.95	881	Detector bias heater off
	13:48:29	828.48	884	Detector bias heater on at level 3
	13:51:09	831.15	881	Detector bias heater off
	13:51:41	831.68	852	Solar port heaters off
	14:07:41	847.68	851	Solar port heaters on
	14:08:13	848.22	821	Elevate to internal source (stow)
	14:24:13	864.22	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
08/03/88	15:12:13	912.22	823	Elevate to nadir (Earth)

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin postcalibration sequence.				
08/03/88	16:36:29	996.48	882	Detector bias heater on at level 1
	16:39:09	999.15	881	Detector bias heater off
	16:39:41	999.68	883	Detector bias heater on at level 2
	16:42:21	1002.35	881	Detector bias heater off
	16:42:53	1002.88	884	Detector bias heater on at level 3
	16:45:33	1005.55	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
08/17/88	08:07:09	487.15	882	Detector bias heater on at level 1
	08:09:49	489.82	881	Detector bias heater off
	08:10:21	490.35	883	Detector bias heater on at level 2
	08:13:01	493.02	881	Detector bias heater off
	08:13:33	493.55	884	Detector bias heater on at level 3
	08:16:13	496.22	881	Detector bias heater off
	08:47:41	527.68	821	Elevate to internal source (stow)
	09:03:41	543.68	862	WFOV BB heater on at temp. 1
	09:19:41	559.68	872	MFOV BB heater on at temp. 1
	10:30:37	630.62	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/17/88	10:31:41	631.68	881	Detector bias heater off
	10:32:13	632.22	852	Solar port heaters off
	10:32:45	632.75	821	Elevate to internal source (stow)
	10:33:17	633.28	851	Solar port heaters on
	10:35:25	635.42	882	Detector bias heater on at level 1
	10:39:09	639.15	892	SWICS on at level 3
	10:42:21	642.35	881	Detector bias heater off
	10:46:05	646.08	862	WFOV BB heater on at temp. 1
	10:46:37	646.62	872	MFOV BB heater on at temp. 1
	10:47:41	647.68	891	SWICS off
	11:01:01	661.02	883	Detector bias heater on at level 2
	11:04:45	664.75	893	SWICS on at level 2
	11:07:57	667.95	881	Detector bias heater off
	11:11:41	671.68	863	WFOV BB heater on at temp. 2
	11:12:13	672.22	873	MFOV BB heater on at temp. 2
	11:13:17	673.28	891	SWICS off
	11:26:37	686.62	884	Detector bias heater on at level 3
	11:30:21	690.35	894	SWICS on at level 1
	11:32:29	692.48	881	Detector bias heater off
	11:35:09	695.15	852	Solar port heaters off
	11:36:13	696.22	861	WFOV BB heater off
	11:36:45	696.75	871	MFOV BB heater off
	11:37:17	697.28	851	Solar port heaters on

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/17/88	11:37:49	697.82	891	SWICS off
End internal calibration sequence.				
08/17/88	11:48:29	708.48	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
08/17/88	11:52:45	712.75	419	Address azimuth position A
	11:53:17	713.28	2xx	Data command, high byte
	11:53:49	713.82	1xx	Data command, low byte
End azimuth angle load commands (A = 150.30°).				
Begin revised solar calibration sequence.				
08/17/88	11:54:53	714.88	822	Elevate to solar ports (Sun)
	12:26:53	746.88	814	Azimuth to position A
	12:27:57	747.95	883	Detector bias heater on at level 2
	12:43:57	763.95	831	SMA shutter cycle on
	13:19:09	799.15	832	SMA shutter cycle off
	13:19:41	799.68	881	Detector bias heater off
	13:38:53	818.88	882	Detector bias heater on at level 1
	13:41:33	821.55	881	Detector bias heater off
	13:42:05	822.08	883	Detector bias heater on at level 2
	13:44:45	824.75	881	Detector bias heater off
	13:45:17	825.28	884	Detector bias heater on at level 3
	13:47:57	827.95	881	Detector bias heater off
	13:48:29	828.48	852	Solar port heaters off
	14:04:29	844.48	851	Solar port heaters on
	14:05:01	845.02	821	Elevate to internal source (stow)
	14:21:01	861.02	813	Azimuth to 180°
End revised solar calibration sequence.				
08/17/88	15:09:01	909.02	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/17/88	16:33:17	993.28	882	Detector bias heater on at level 1
	16:35:57	995.95	881	Detector bias heater off
	16:36:29	996.48	883	Detector bias heater on at level 2
	16:39:09	999.15	881	Detector bias heater off
	16:39:41	999.68	884	Detector bias heater on at level 3
	16:42:21	1002.35	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
08/31/88	08:05:01	485.02	882	Detector bias heater on at level 1
	08:07:41	487.68	881	Detector bias heater off
	08:08:13	488.22	883	Detector bias heater on at level 2
	08:10:53	490.88	881	Detector bias heater off
	08:11:25	491.42	884	Detector bias heater on at level 3
	08:14:05	494.08	881	Detector bias heater off
	08:45:33	525.55	821	Elevate to internal source (stow)
	09:01:33	541.55	862	WFOV BB heater on at temp. 1
	09:17:33	557.55	872	MFOV BB heater on at temp. 1

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/31/88	10:28:29	628.48	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
08/31/88	10:29:33	629.55	881	Detector bias heater off
	10:30:05	630.08	852	Solar port heaters off
	10:30:37	630.62	821	Elevate to internal source (stow)
	10:31:09	631.15	851	Solar port heaters on
	10:33:17	633.28	882	Detector bias heater on at level 1
	10:37:01	637.02	892	SWICS on at level 3
	10:40:13	640.22	881	Detector bias heater off
	10:43:57	643.95	862	WFOV BB heater on at temp. 1
	10:44:29	644.48	872	MFOV BB heater on at temp. 1
	10:45:33	645.55	891	SWICS off
	10:58:53	658.88	883	Detector bias heater on at level 2
	11:02:37	662.62	893	SWICS on at level 2
	11:05:49	665.82	881	Detector bias heater off
	11:09:33	669.55	863	WFOV BB heater on at temp. 2
	11:10:05	670.08	873	MFOV BB heater on at temp. 2
	11:11:09	671.15	891	SWICS off
	11:24:29	684.48	884	Detector bias heater on at level 3
	11:28:13	688.22	894	SWICS on at level 1
	11:30:21	690.35	881	Detector bias heater off
	11:33:01	693.02	852	Solar port heaters off
	11:34:05	694.08	861	WFOV BB heater off
	11:34:37	694.62	871	MFOV BB heater off
	11:35:09	695.15	851	Solar port heaters on
	11:35:41	695.68	891	SWICS off
End internal calibration sequence.				
08/31/88	11:46:21	706.35	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
08/31/88	11:50:37	710.62	419	Address azimuth position A
	11:51:09	711.15	2xx	Data command, high byte
	11:51:41	711.68	1xx	Data command, low byte
End azimuth angle load commands ( $A = 152.78^\circ$ ).				
Begin revised solar calibration sequence.				
08/31/88	11:52:45	712.75	822	Elevate to solar ports (Sun)
	12:24:45	744.75	814	Azimuth to position A
	12:25:49	745.82	883	Detector bias heater on at level 2
	12:41:49	761.82	831	SMA shutter cycle on
	13:17:01	797.02	832	SMA shutter cycle off
	13:17:33	797.55	881	Detector bias heater off
	13:36:45	816.75	882	Detector bias heater on at level 1
	13:39:25	819.42	881	Detector bias heater off
	13:39:57	819.95	883	Detector bias heater on at level 2
	13:42:37	822.62	881	Detector bias heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/31/88	13:43:09	823.15	884	Detector bias heater on at level 3
	13:45:49	825.82	881	Detector bias heater off
	13:46:21	826.35	852	Solar port heaters off
	14:02:21	842.35	851	Solar port heaters on
	14:02:53	842.88	821	Elevate to internal source (stow)
	14:18:53	858.88	813	Azimuth to 180°
End revised solar calibration sequence.				
08/31/88	15:06:53	906.88	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
08/31/88	16:31:09	991.15	882	Detector bias heater on at level 1
	16:33:49	993.82	881	Detector bias heater off
	16:34:21	994.35	883	Detector bias heater on at level 2
	16:37:01	997.02	881	Detector bias heater off
	16:37:33	997.55	884	Detector bias heater on at level 3
	16:40:13	1000.22	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
09/14/88	08:02:53	482.88	882	Detector bias heater on at level 1
	08:05:33	485.55	881	Detector bias heater off
	08:06:05	486.08	883	Detector bias heater on at level 2
	08:08:45	488.75	881	Detector bias heater off
	08:09:17	489.28	884	Detector bias heater on at level 3
	08:11:57	491.95	881	Detector bias heater off
	08:43:25	523.42	821	Elevate to internal source (stow)
	08:59:25	539.42	862	WFOV BB heater on at temp. 1
	09:15:25	555.42	872	MFOV BB heater on at temp. 1
	10:26:21	626.35	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
09/14/88	10:27:25	627.42	881	Detector bias heater off
	10:27:57	627.95	852	Solar port heaters off
	10:28:29	628.48	821	Elevate to internal source (stow)
	10:29:01	629.02	851	Solar port heaters on
	10:31:09	631.15	882	Detector bias heater on at level 1
	10:34:53	634.88	892	SWICS on at level 3
	10:38:05	638.08	881	Detector bias heater off
	10:41:49	641.82	862	WFOV BB heater on at temp. 1
	10:42:21	642.35	872	MFOV BB heater on at temp. 1
	10:43:25	643.42	891	SWICS off
	10:56:45	656.75	883	Detector bias heater on at level 2
	11:00:29	660.48	893	SWICS on at level 2
	11:03:41	663.68	881	Detector bias heater off
	11:07:25	667.42	863	WFOV BB heater on at temp. 2
	11:07:57	667.95	873	MFOV BB heater on at temp. 2
	11:09:01	669.02	891	SWICS off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/14/88	11:22:21	682.35	884	Detector bias heater on at level 3
	11:26:05	686.08	894	SWICS on at level 1
	11:28:13	688.22	881	Detector bias heater off
	11:30:53	690.88	852	Solar port heaters off
	11:31:57	691.95	861	WFOV BB heater off
	11:32:29	692.48	871	MFOV BB heater off
	11:33:01	693.02	851	Solar port heaters on
	11:33:33	693.55	891	SWICS off
End internal calibration sequence.				
09/14/88	11:44:13	704.22	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
09/14/88	11:48:29	708.48	419	Address azimuth position A
	11:49:01	709.02	2xx	Data command, high byte
	11:49:33	709.55	1xx	Data command, low byte
End azimuth angle load commands (A = 154.58°).				
Begin revised solar calibration sequence.				
09/14/88	11:50:37	710.62	822	Elevate to solar ports (Sun)
	12:22:37	742.62	814	Azimuth to position A
	12:23:41	743.68	883	Detector bias heater on at level 2
	12:39:41	759.68	831	SMA shutter cycle on
	13:14:53	794.88	832	SMA shutter cycle off
	13:15:25	795.42	881	Detector bias heater off
	13:34:37	814.62	882	Detector bias heater on at level 1
	13:37:17	817.28	881	Detector bias heater off
	13:37:49	817.82	883	Detector bias heater on at level 2
	13:40:29	820.48	881	Detector bias heater off
	13:41:01	821.02	884	Detector bias heater on at level 3
	13:43:41	823.68	881	Detector bias heater off
	13:44:13	824.22	852	Solar port heaters off
	14:02:53	842.88	821	Elevate to internal source (stow)
	14:16:45	856.75	813	Azimuth to 180°
End revised solar calibration sequence.				
One command obscured by data dropout.				
09/14/88	15:04:45	904.75	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
09/14/88	16:29:01	989.02	882	Detector bias heater on at level 1
	16:31:41	991.68	881	Detector bias heater off
	16:32:13	992.22	883	Detector bias heater on at level 2
	16:34:53	994.88	881	Detector bias heater off
	16:35:25	995.42	884	Detector bias heater on at level 3
	16:38:05	998.08	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
09/28/88	08:00:45	480.75	882	Detector bias heater on at level 1
	08:03:25	483.42	881	Detector bias heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/28/88	08:03:57	483.95	883	Detector bias heater on at level 2
	08:06:37	486.62	881	Detector bias heater off
	08:07:09	487.15	884	Detector bias heater on at level 3
	08:09:49	489.82	881	Detector bias heater off
	08:41:17	521.28	821	Elevate to internal source (stow)
	08:57:17	537.28	862	WFOV BB heater on at temp. 1
	09:13:17	553.28	872	MFOV BB heater on at temp. 1
	10:24:13	624.22	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
09/28/88	10:25:17	625.28	881	Detector bias heater off
	10:25:49	625.82	852	Solar port heaters off
	10:26:21	626.35	821	Elevate to internal source (stow)
	10:26:53	626.88	851	Solar port heaters on
	10:29:01	629.02	882	Detector bias heater on at level 1
	10:32:45	632.75	892	SWICS on at level 3
	10:35:57	635.95	881	Detector bias heater off
	10:40:13	640.22	872	MFOV BB heater on at temp. 1
	10:41:17	641.28	891	SWICS off
	10:54:37	654.62	883	Detector bias heater on at level 2
	10:58:21	658.35	893	SWICS on at level 2
	11:01:33	661.55	881	Detector bias heater off
	11:05:17	665.28	863	WFOV BB heater on at temp. 2
	11:05:49	665.82	873	MFOV BB heater on at temp. 2
	11:06:53	666.88	891	SWICS off
	11:20:13	680.22	884	Detector bias heater on at level 3
	11:23:57	683.95	894	SWICS on at level 1
	11:26:05	686.08	881	Detector bias heater off
	11:28:45	688.75	852	Solar port heaters off
	11:29:49	689.82	861	WFOV BB heater off
	11:30:21	690.35	871	MFOV BB heater off
	11:30:53	690.88	851	Solar port heaters on
	11:31:25	691.42	891	SWICS off
End internal calibration sequence.				
09/28/88	11:42:05	702.08	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
09/28/88	11:46:21	706.35	419	Address azimuth position A
	11:46:53	706.88	2xx	Data command, high byte
	11:47:25	707.42	1xx	Data command, low byte
End azimuth angle load commands ( $A = 155.40^\circ$ ).				
Begin revised solar calibration sequence.				
09/28/88	11:48:29	708.48	822	Elevate to solar ports (Sun)
	12:20:29	740.48	814	Azimuth to position A
	12:21:33	741.55	883	Detector bias heater on at level 2
	12:37:33	757.55	831	SMA shutter cycle on

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/28/88	13:12:45	792.75	832	SMA shutter cycle off
	13:13:17	793.28	881	Detector bias heater off
	13:32:29	812.48	882	Detector bias heater on at level 1
	13:35:09	815.15	881	Detector bias heater off
	13:35:41	815.68	883	Detector bias heater on at level 2
	13:38:21	818.35	881	Detector bias heater off
	13:38:53	818.88	884	Detector bias heater on at level 3
	13:41:33	821.55	881	Detector bias heater off
	13:42:05	822.08	852	Solar port heaters off
	13:58:05	838.08	851	Solar port heaters on
	13:58:37	838.62	821	Elevate to internal source (stow)
	14:14:37	854.62	813	Azimuth to 180°
End revised solar calibration sequence.				
09/28/88	15:02:37	902.62	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
09/28/88	16:26:53	986.88	882	Detector bias heater on at level 1
	16:29:33	989.55	881	Detector bias heater off
	16:30:05	990.08	883	Detector bias heater on at level 2
	16:32:45	992.75	881	Detector bias heater off
	16:33:17	993.28	884	Detector bias heater on at level 3
	16:35:57	995.95	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
10/12/88	07:58:05	478.08	882	Detector bias heater on at level 1
	08:00:45	480.75	881	Detector bias heater off
	08:01:17	481.28	883	Detector bias heater on at level 2
	08:03:57	483.95	881	Detector bias heater off
	08:04:29	484.48	884	Detector bias heater on at level 3
	08:07:09	487.15	881	Detector bias heater off
	08:38:37	518.62	821	Elevate to internal source (stow)
	08:54:37	534.62	862	WFOV BB heater on at temp. 1
	09:10:37	550.62	872	MFOV BB heater on at temp. 1
	10:21:33	621.55	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
10/12/88	10:22:37	622.62	881	Detector bias heater off
	10:23:09	623.15	852	Solar port heaters off
	10:23:41	623.68	821	Elevate to internal source (stow)
	10:24:13	624.22	851	Solar port heaters on
	10:26:21	626.35	882	Detector bias heater on at level 1
	10:30:05	630.08	892	SWICS on at level 3
	10:33:17	633.28	881	Detector bias heater off
	10:37:01	637.02	862	WFOV BB heater on at temp. 1
	10:37:33	637.55	872	MFOV BB heater on at temp. 1
	10:38:37	638.62	891	SWICS off



Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/12/88	10:51:57	651.95	883	Detector bias heater on at level 2
	10:55:41	655.68	893	SWICS on at level 2
	10:58:53	658.88	881	Detector bias heater off
	11:02:37	662.62	863	WFOV BB heater on at temp. 2
	11:03:09	663.15	873	MFOV BB heater on at temp. 2
	11:04:13	664.22	891	SWICS off
	11:17:33	677.55	884	Detector bias heater on at level 3
	11:21:17	681.28	894	SWICS on at level 1
	11:23:25	683.42	881	Detector bias heater off
	11:26:05	686.08	852	Solar port heaters off
	11:27:09	687.15	861	WFOV BB heater off
	11:27:41	687.68	871	MFOV BB heater off
	11:28:13	688.22	851	Solar port heaters on
	11:28:45	688.75	891	SWICS off
End internal calibration sequence.				
10/12/88	11:39:25	699.42	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
10/12/88	11:43:41	703.68	419	Address azimuth position A
	11:44:13	704.22	2xx	Data command, high byte
	11:44:45	704.75	1xx	Data command, low byte
End azimuth angle load commands ( $A = 155.33^\circ$ ).				
Begin revised solar calibration sequence.				
10/12/88	11:45:49	705.82	822	Elevate to solar ports (Sun)
	12:17:49	737.82	814	Azimuth to position A
	12:18:53	738.88	883	Detector bias heater on at level 2
	12:34:53	754.88	831	SMA shutter cycle on
	13:10:05	790.08	832	SMA shutter cycle off
	13:10:37	790.62	881	Detector bias heater off
	13:29:49	809.82	882	Detector bias heater on at level 1
	13:32:29	812.48	881	Detector bias heater off
	13:33:01	813.02	883	Detector bias heater on at level 2
	13:35:41	815.68	881	Detector bias heater off
	13:36:13	816.22	884	Detector bias heater on at level 3
	13:38:53	818.88	881	Detector bias heater off
	13:39:25	819.42	852	Solar port heaters off
	13:55:25	835.42	851	Solar port heaters on
	13:55:57	835.95	821	Elevate to internal source (stow)
	14:11:57	851.95	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
10/12/88	14:59:57	899.95	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
10/12/88	16:24:13	984.22	882	Detector bias heater on at level 1
	16:26:53	986.88	881	Detector bias heater off
	16:27:25	987.42	883	Detector bias heater on at level 2
	16:30:05	990.08	881	Detector bias heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/12/88	16:30:37	990.62	884	Detector bias heater on at level 3
	16:33:17	993.28	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
10/26/88	07:54:53	474.88	882	Detector bias heater on at level 1
	07:57:33	477.55	881	Detector bias heater off
	07:58:05	478.08	883	Detector bias heater on at level 2
	08:00:45	480.75	881	Detector bias heater off
	08:01:17	481.28	884	Detector bias heater on at level 3
	08:03:57	483.95	881	Detector bias heater off
	08:35:25	515.42	821	Elevate to internal source (stow)
	08:51:25	531.42	862	WFOV BB heater on at temp. 1
	09:07:25	547.42	872	MFOV BB heater on at temp. 1
	10:18:21	618.35	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
10/26/88	10:19:25	619.42	881	Detector bias heater off
	10:19:57	619.95	852	Solar port heaters off
	10:20:29	620.48	821	Elevate to internal source (stow)
	10:21:01	621.02	851	Solar port heaters on
	10:23:09	623.15	882	Detector bias heater on at level 1
	10:26:53	626.88	892	SWICS on at level 3
	10:30:05	630.08	881	Detector bias heater off
	10:33:49	633.82	862	WFOV BB heater on at temp. 1
	10:34:21	634.35	872	MFOV BB heater on at temp. 1
	10:35:25	635.42	891	SWICS off
	10:48:45	648.75	883	Detector bias heater on at level 2
	10:52:29	652.48	893	SWICS on at level 2
	10:55:41	655.68	881	Detector bias heater off
	10:59:25	659.42	863	WFOV BB heater on at temp. 2
	10:59:57	659.95	873	MFOV BB heater on at temp. 2
	11:01:01	661.02	891	SWICS off
	11:14:21	674.35	884	Detector bias heater on at level 3
	11:18:05	678.08	894	SWICS on at level 1
	11:20:13	680.22	881	Detector bias heater off
	11:22:53	682.88	852	Solar port heaters off
	11:23:57	683.95	861	WFOV BB heater off
	11:24:29	684.48	871	MFOV BB heater off
	11:25:01	685.02	851	Solar port heaters on
	11:25:33	685.55	891	SWICS off
End internal calibration sequence.				
10/26/88	11:36:13	696.22	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
10/26/88	11:40:29	700.48	419	Address azimuth position A

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/26/88	11:41:01	701.02	2xx	Data command, high byte
	11:41:33	701.55	1xx	Data command, low byte
End azimuth angle load commands ( $A = 154.58^\circ$ ).				
Begin revised solar calibration sequence.				
10/26/88	11:42:37	702.62	822	Elevate to solar ports (Sun)
	12:14:37	734.62	814	Azimuth to position A
	12:15:41	735.68	883	Detector bias heater on at level 2
	12:31:41	751.68	831	SMA shutter cycle on
	13:06:53	786.88	832	SMA shutter cycle off
	13:07:25	787.42	881	Detector bias heater off
	13:26:37	806.62	882	Detector bias heater on at level 1
	13:29:17	809.28	881	Detector bias heater off
	13:29:49	809.82	883	Detector bias heater on at level 2
	13:32:29	812.48	881	Detector bias heater off
	13:33:01	813.02	884	Detector bias heater on at level 3
	13:35:41	815.68	881	Detector bias heater off
	13:36:45	816.75	852	Solar port heaters off
	13:52:13	832.22	851	Solar port heaters on
	13:52:45	832.75	821	Elevate to internal source (stow)
	14:08:45	848.75	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
10/26/88	14:56:45	896.75	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
10/26/88	16:21:01	981.02	882	Detector bias heater on at level 1
	16:23:41	983.68	881	Detector bias heater off
	16:24:13	984.22	883	Detector bias heater on at level 2
	16:26:53	986.88	881	Detector bias heater off
	16:27:25	987.42	884	Detector bias heater on at level 3
	16:30:05	990.08	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
11/09/88	07:51:09	471.15	882	Detector bias heater on at level 1
	07:53:49	473.82	881	Detector bias heater off
	07:54:21	474.35	883	Detector bias heater on at level 2
	07:57:01	477.02	881	Detector bias heater off
	07:57:33	477.55	884	Detector bias heater on at level 3
	08:00:13	480.22	881	Detector bias heater off
	08:31:41	511.68	821	Elevate to internal source (stow)
	08:47:41	527.68	862	WFOV BB heater on at temp. 1
	09:03:41	543.68	872	MFOV BB heater on at temp. 1
	10:14:37	614.62	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/09/88	10:15:41	615.68	881	Detector bias heater off
	10:16:13	616.22	852	Solar port heaters off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/09/88	10:16:45	616.75	821	Elevate to internal source (stow)
	10:17:17	617.28	851	Solar port heaters on
	10:19:25	619.42	882	Detector bias heater on at level 1
	10:23:09	623.15	892	SWICS on at level 3
	10:26:21	626.35	881	Detector bias heater off
	10:30:05	630.08	862	WFOV BB heater on at temp. 1
	10:30:37	630.62	872	MFOV BB heater on at temp. 1
	10:31:41	631.68	891	SWICS off
	10:45:01	645.02	883	Detector bias heater on at level 2
	10:48:45	648.75	893	SWICS on at level 2
	10:51:57	651.95	881	Detector bias heater off
	10:55:41	655.68	863	WFOV BB heater on at temp. 2
	10:56:13	656.22	873	MFOV BB heater on at temp. 2
	10:57:17	657.28	891	SWICS off
	11:10:37	670.62	884	Detector bias heater on at level 3
	11:14:21	674.35	894	SWICS on at level 1
	11:16:29	676.48	881	Detector bias heater off
	11:19:09	679.15	852	Solar port heaters off
	11:20:13	680.22	861	WFOV BB heater off
	11:20:45	680.75	871	MFOV BB heater off
	11:21:17	681.28	851	Solar port heaters on
	11:21:49	681.82	891	SWICS off
End internal calibration sequence.				
11/09/88	11:32:29	692.48	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
11/09/88	11:36:45	696.75	419	Address azimuth position A
	11:37:17	697.28	2xx	Data command, high byte
	11:37:49	697.82	1xx	Data command, low byte
End azimuth angle load commands ( $A = 153.83^\circ$ ).				
Begin revised solar calibration sequence.				
11/09/88	11:38:53	698.88	822	Elevate to solar ports (Sun)
	12:10:53	730.88	814	Azimuth to position A
	12:11:57	731.95	883	Detector bias heater on at level 2
	12:27:57	747.95	831	SMA shutter cycle on
	13:03:09	783.15	832	SMA shutter cycle off
	13:03:41	783.68	881	Detector bias heater off
	13:22:53	802.88	882	Detector bias heater on at level 1
	13:25:33	805.55	881	Detector bias heater off
	13:26:05	806.08	883	Detector bias heater on at level 2
	13:28:45	808.75	881	Detector bias heater off
	13:29:17	809.28	884	Detector bias heater on at level 3
	13:31:57	811.95	881	Detector bias heater off
	13:32:29	812.48	852	Solar port heaters off
	13:48:29	828.48	851	Solar port heaters on

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/09/88	13:49:01	829.02	821	Elevate to internal source (stow)
	14:05:01	845.02	813	Azimuth to 180°
End revised solar calibration sequence.				
11/09/88	14:53:01	893.02	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/09/88	16:17:17	977.28	882	Detector bias heater on at level 1
	16:19:57	979.95	881	Detector bias heater off
	16:20:29	980.48	883	Detector bias heater on at level 2
	16:23:09	983.15	881	Detector bias heater off
	16:23:41	983.68	884	Detector bias heater on at level 3
	16:26:21	986.35	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
11/23/88	07:46:53	466.88	882	Detector bias heater on at level 1
	07:49:33	469.55	881	Detector bias heater off
	07:50:05	470.08	883	Detector bias heater on at level 2
	07:52:45	472.75	881	Detector bias heater off
	07:53:17	473.28	884	Detector bias heater on at level 3
	07:55:57	475.95	881	Detector bias heater off
	08:27:25	507.42	821	Elevate to internal source (stow)
	08:43:25	523.42	862	WFOV BB heater on at temp. 1
	08:59:25	539.42	872	MFOV BB heater on at temp. 1
	10:10:21	610.35	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
11/23/88	10:11:25	611.42	881	Detector bias heater off
	10:11:57	611.95	852	Solar port heaters off
	10:12:29	612.48	821	Elevate to internal source (stow)
	10:13:01	613.02	851	Solar port heaters on
	10:15:09	615.15	882	Detector bias heater on at level 1
	10:18:53	618.88	892	SWICS on at level 3
	10:22:05	622.08	881	Detector bias heater off
	10:25:49	625.82	862	WFOV BB heater on at temp. 1
	10:26:21	626.35	872	MFOV BB heater on at temp. 1
	10:27:25	627.42	891	SWICS off
	10:40:45	640.75	883	Detector bias heater on at level 2
	10:44:29	644.48	893	SWICS on at level 2
	10:47:41	647.68	881	Detector bias heater off
	10:51:25	651.42	863	WFOV BB heater on at temp. 2
	10:51:57	651.95	873	MFOV BB heater on at temp. 2
	10:53:01	653.02	891	SWICS off
	11:06:21	666.35	884	Detector bias heater on at level 3
	11:10:05	670.08	894	SWICS on at level 1
	11:12:13	672.22	881	Detector bias heater off
	11:14:53	674.88	852	Solar port heaters off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
11/23/88	11:15:57	675.95	861	WFOV BB heater off
	11:16:29	676.48	871	MFOV BB heater off
	11:17:01	677.02	851	Solar port heaters on
	11:17:33	677.55	891	SWICS off
End internal calibration sequence.				
11/23/88	11:28:13	688.22	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
11/23/88	11:32:29	692.48	419	Address azimuth position A
	11:33:01	693.02	2xx	Data command, high byte
	11:33:33	693.55	1xx	Data command, low byte
End azimuth angle load commands (A = 153.45°).				
Begin revised solar calibration sequence.				
11/23/88	11:34:37	694.62	822	Elevate to solar ports (Sun)
	12:06:37	726.62	814	Azimuth to position A
	12:07:41	727.68	883	Detector bias heater on at level 2
	12:23:41	743.68	831	SMA shutter cycle on
	12:58:53	778.88	832	SMA shutter cycle off
	12:59:25	779.42	881	Detector bias heater off
	13:18:37	798.62	882	Detector bias heater on at level 1
	13:21:17	801.28	881	Detector bias heater off
	13:21:49	801.82	883	Detector bias heater on at level 2
	13:24:29	804.48	881	Detector bias heater off
	13:25:01	805.02	884	Detector bias heater on at level 3
	13:27:41	807.68	881	Detector bias heater off
	13:28:13	808.22	852	Solar port heaters off
	13:44:13	824.22	851	Solar port heaters on
	13:44:45	824.75	821	Elevate to internal source (stow)
	14:00:45	840.75	813	Azimuth to 180°
End revised solar calibration sequence.				
11/23/88	14:48:45	888.75	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
11/23/88	16:13:01	973.02	882	Detector bias heater on at level 1
	16:15:41	975.68	881	Detector bias heater off
	16:16:13	976.22	883	Detector bias heater on at level 2
	16:18:53	978.88	881	Detector bias heater off
	16:19:25	979.42	884	Detector bias heater on at level 3
	16:22:05	982.08	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
12/07/88	07:42:05	462.08	882	Detector bias heater on at level 1
	07:44:45	464.75	881	Detector bias heater off
	07:45:17	465.28	883	Detector bias heater on at level 2
	07:47:57	467.95	881	Detector bias heater off
	07:48:29	468.48	884	Detector bias heater on at level 3
	07:51:09	471.15	881	Detector bias heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/07/88	08:22:37	502.62	821	Elevate to internal source (stow)
	08:38:37	518.62	862	WFOV BB heater on at temp. 1
	08:54:37	534.62	872	MFOV BB heater on at temp. 1
	10:05:33	605.55	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence. Begin internal calibration sequence.				
12/07/88	10:06:37	606.62	881	Detector bias heater off
	10:07:09	607.15	852	Solar port heaters off
	10:07:41	607.68	821	Elevate to internal source (stow)
	10:08:13	608.22	851	Solar port heaters on
	10:10:21	610.35	882	Detector bias heater on at level 1
	10:14:05	614.08	892	SWICS on at level 3
	10:17:17	617.28	881	Detector bias heater off
	10:21:01	621.02	862	WFOV BB heater on at temp. 1
	10:21:33	621.55	872	MFOV BB heater on at temp. 1
	10:22:37	622.62	891	SWICS off
	10:35:57	635.95	883	Detector bias heater on at level 2
	10:39:41	639.68	893	SWICS on at level 2
	10:42:53	642.88	881	Detector bias heater off
	10:46:37	646.62	863	WFOV BB heater on at temp. 2
	10:47:09	647.15	873	MFOV BB heater on at temp. 2
	10:48:13	648.22	891	SWICS off
	11:01:33	661.55	884	Detector bias heater on at level 3
	11:05:17	665.28	894	SWICS on at level 1
	11:07:25	667.42	881	Detector bias heater off
	11:10:05	670.08	852	Solar port heaters off
	11:11:09	671.15	861	WFOV BB heater off
	11:11:41	671.68	871	MFOV BB heater off
	11:12:13	672.22	851	Solar port heaters on
	11:12:45	672.75	891	SWICS off
End internal calibration sequence.				
12/07/88	11:23:25	683.42	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
12/07/88	11:27:41	687.68	419	Address azimuth position A
	11:28:13	688.22	2xx	Data command, high byte
	11:28:45	688.75	1xx	Data command, low byte
End azimuth angle load commands ( $A = 153.75^\circ$ ). Begin revised solar calibration sequence.				
12/07/88	11:29:49	689.82	822	Elevate to solar ports (Sun)
	12:01:49	721.82	814	Azimuth to position A
	12:02:53	722.88	883	Detector bias heater on at level 2
	12:18:53	738.88	831	SMA shutter cycle on
	12:54:05	774.08	832	SMA shutter cycle off
	12:54:37	774.62	881	Detector bias heater off
	13:13:49	793.82	882	Detector bias heater on at level 1

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/07/88	13:16:29	796.48	881	Detector bias heater off
	13:17:01	797.02	883	Detector bias heater on at level 2
	13:19:41	799.68	881	Detector bias heater off
	13:20:13	800.22	884	Detector bias heater on at level 3
	13:22:53	802.88	881	Detector bias heater off
	13:23:25	803.42	852	Solar port heaters off
	13:39:25	819.42	851	Solar port heaters on
	13:39:57	819.95	821	Elevate to internal source (stow)
	13:55:57	835.95	813	Azimuth to 180°
End revised solar calibration sequence.				
12/07/88	14:43:57	883.95	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/07/88	16:08:13	968.22	882	Detector bias heater on at level 1
	16:10:53	970.88	881	Detector bias heater off
	16:11:25	971.42	883	Detector bias heater on at level 2
	16:14:05	974.08	881	Detector bias heater off
	16:14:37	974.62	884	Detector bias heater on at level 3
	16:17:17	977.28	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
12/21/88	07:36:13	456.22	882	Detector bias heater on at level 1
	07:38:53	458.88	881	Detector bias heater off
	07:39:25	459.42	883	Detector bias heater on at level 2
	07:42:05	462.08	881	Detector bias heater off
	07:42:37	462.62	884	Detector bias heater on at level 3
	07:45:17	465.28	881	Detector bias heater off
	08:16:45	496.75	821	Elevate to internal source (stow)
	08:32:45	512.75	862	WFOV BB heater on at temp. 1
	08:48:45	528.75	872	MFOV BB heater on at temp. 1
	09:59:41	599.68	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
12/21/88	10:00:45	600.75	881	Detector bias heater off
	10:01:17	601.28	852	Solar port heaters off
	10:01:49	601.82	821	Elevate to internal source (stow)
	10:02:21	602.35	851	Solar port heaters on
	10:04:29	604.48	882	Detector bias heater on at level 1
	10:08:13	608.22	892	SWICS on at level 3
	10:11:25	611.42	881	Detector bias heater off
	10:15:09	615.15	862	WFOV BB heater on at temp. 1
	10:15:41	615.68	872	MFOV BB heater on at temp. 1
	10:16:45	616.75	891	SWICS off
	10:30:05	630.08	883	Detector bias heater on at level 2
	10:33:49	633.82	893	SWICS on at level 2
	10:37:01	637.02	881	Detector bias heater off



Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/21/88	10:40:45	640.75	863	WFOV BB heater on at temp. 2
	10:41:17	641.28	873	MFOV BB heater on at temp. 2
	10:42:21	642.35	891	SWICS off
	10:55:41	655.68	884	Detector bias heater on at level 3
	10:59:25	659.42	894	SWICS on at level 1
	11:01:33	661.55	881	Detector bias heater off
	11:04:13	664.22	852	Solar port heaters off
	11:05:17	665.28	861	WFOV BB heater off
	11:05:49	665.82	871	MFOV BB heater off
	11:06:21	666.35	851	Solar port heaters on
	11:06:53	666.88	891	SWICS off
End internal calibration sequence.				
12/21/88	11:17:33	677.55	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
12/21/88	11:21:49	681.82	419	Address azimuth position A
	11:22:21	682.35	2xx	Data command, high byte
	11:22:53	682.88	1xx	Data command, low byte
End azimuth angle load commands (A = 154.95°).				
Begin revised solar calibration sequence.				
12/21/88	11:23:57	683.95	822	Elevate to solar ports (Sun)
	11:55:57	715.95	814	Azimuth to position A
	11:57:01	717.02	883	Detector bias heater on at level 2
	12:13:01	733.02	831	SMA shutter cycle on
	12:48:13	768.22	832	SMA shutter cycle off
	12:48:45	768.75	881	Detector bias heater off
	13:07:57	787.95	882	Detector bias heater on at level 1
	13:10:37	790.62	881	Detector bias heater off
	13:11:09	791.15	883	Detector bias heater on at level 2
	13:13:49	793.82	881	Detector bias heater off
	13:14:21	794.35	884	Detector bias heater on at level 3
	13:17:01	797.02	881	Detector bias heater off
	13:17:33	797.55	852	Solar port heaters off
	13:33:33	813.55	851	Solar port heaters on
	13:34:05	814.08	821	Elevate to internal source (stow)
	13:50:05	830.08	813	Azimuth to 180°
End revised solar calibration sequence.				
12/21/88	14:38:05	878.08	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
12/21/88	16:02:21	962.35	882	Detector bias heater on at level 1
	16:05:01	965.02	881	Detector bias heater off
	16:05:33	965.55	883	Detector bias heater on at level 2
	16:08:13	968.22	881	Detector bias heater off
	16:08:45	968.75	884	Detector bias heater on at level 3
12/21/88	16:11:25	971.42	881	Detector bias heater off
	End postcalibration sequence.			

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
01/04/89	07:29:50	449.83	882	Detector bias heater on at level 1
	07:32:30	452.50	881	Detector bias heater off
	07:33:02	453.03	883	Detector bias heater on at level 2
	07:35:42	455.70	881	Detector bias heater off
	07:36:14	456.23	884	Detector bias heater on at level 3
	07:38:54	458.90	881	Detector bias heater off
	08:10:22	490.37	821	Elevate to internal source (stow)
	08:26:22	506.37	862	WFOV BB heater on at temp. 1
	08:42:22	522.37	872	MFOV BB heater on at temp. 1
	09:53:18	593.30	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/04/89	09:54:22	594.37	881	Detector bias heater off
	09:54:54	594.90	852	Solar port heaters off
	09:55:26	595.43	821	Elevate to internal source (stow)
	09:55:58	595.97	851	Solar port heaters on
	09:58:06	598.10	882	Detector bias heater on at level 1
	10:01:50	601.83	892	SWICS on at level 3
	10:05:02	605.03	881	Detector bias heater off
	10:08:46	608.77	862	WFOV BB heater on at temp. 1
	10:09:18	609.30	872	MFOV BB heater on at temp. 1
	10:10:22	610.37	891	SWICS off
	10:23:42	623.70	883	Detector bias heater on at level 2
	10:27:26	627.43	893	SWICS on at level 2
	10:30:38	630.63	881	Detector bias heater off
	10:34:22	634.37	863	WFOV BB heater on at temp. 2
	10:34:54	634.90	873	MFOV BB heater on at temp. 2
	10:35:58	635.97	891	SWICS off
	10:49:18	649.30	884	Detector bias heater on at level 3
	10:53:02	653.03	894	SWICS on at level 1
	10:55:10	655.17	881	Detector bias heater off
	10:57:50	657.83	852	Solar port heaters off
	10:58:54	658.90	861	WFOV BB heater off
	10:59:26	659.43	871	MFOV BB heater off
	10:59:58	659.97	851	Solar port heaters on
	11:00:30	660.50	891	SWICS off
End internal calibration sequence.				
01/04/89	11:11:10	671.17	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
01/04/89	11:15:26	675.43	419	Address azimuth position A
	11:15:58	675.97	2xx	Data command, high byte
	11:16:30	676.50	1xx	Data command, low byte
End azimuth angle load commands (A = 156.90°).				

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised solar calibration sequence.				
01/04/89	11:17:34	677.57	822	Elevate to solar ports (Sun)
	11:49:34	709.57	814	Azimuth to position A
	11:50:38	710.63	883	Detector bias heater on at level 2
	12:06:38	726.63	831	SMA shutter cycle on
	12:41:50	761.83	832	SMA shutter cycle off
	12:42:22	762.37	881	Detector bias heater off
	13:01:34	781.57	882	Detector bias heater on at level 1
	13:04:14	784.23	881	Detector bias heater off
	13:04:46	784.77	883	Detector bias heater on at level 2
	13:07:26	787.43	881	Detector bias heater off
	13:07:58	787.97	884	Detector bias heater on at level 3
	13:10:38	790.63	881	Detector bias heater off
	13:11:10	791.17	852	Solar port heaters off
	13:27:10	807.17	851	Solar port heaters on
	13:27:42	807.70	821	Elevate to internal source (stow)
	13:43:42	823.70	813	Azimuth to 180°
End revised solar calibration sequence.				
01/04/89	14:31:42	871.70	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/04/89	15:55:58	955.97	882	Detector bias heater on at level 1
	15:58:38	958.63	881	Detector bias heater off
	15:59:10	959.17	883	Detector bias heater on at level 2
	16:01:50	961.83	881	Detector bias heater off
	16:02:22	962.37	884	Detector bias heater on at level 3
	16:05:02	965.03	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for special SMA sequences.				
01/24/89	08:32:46	512.77	419	Address azimuth position A
	08:33:18	513.30	2xx	Data command, high byte
	08:33:50	513.83	1xx	Data command, low byte
End azimuth angle load commands (A=160.58°).				
01/24/89	08:34:22	514.37	814	Azimuth to position A
	09:31:26	571.43	831	SMA shutter cycle on
	11:11:10	671.17	852	Solar port heaters off
	12:52:30	772.50	883	Detector bias heater on at level 2
	14:33:50	873.83	851	Solar port heaters on
	16:14:38	974.63	881	Detector bias heater off
	16:15:10	975.17	832	SMA shutter cycle off
	16:16:14	976.23	831	SMA shutter cycle on
	17:18:06	1038.10	832	SMA shutter cycle off
	18:15:42	1095.70	831	SMA shutter cycle on
	18:45:34	1125.57	832	SMA shutter cycle off
	19:54:54	1194.90	831	SMA shutter cycle on
	19:57:02	1197.03	832	SMA shutter cycle off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/24/89	19:59:10	1199.17	831	SMA shutter cycle on
	20:03:26	1203.43	832	SMA shutter cycle off
	20:05:34	1205.57	831	SMA shutter cycle on
	20:07:42	1207.70	832	SMA shutter cycle off
	20:08:46	1208.77	831	SMA shutter cycle on
	20:13:02	1213.03	832	SMA shutter cycle off
	20:17:18	1217.30	831	SMA shutter cycle on
	20:21:34	1221.57	832	SMA shutter cycle off
	21:57:02	1317.03	813	Azimuth to 180°
Begin revised preinternal calibration sequence.				
01/25/89	08:08:46	488.77	882	Detector bias heater on at level 1
	08:11:26	491.43	881	Detector bias heater off
	08:11:58	491.97	883	Detector bias heater on at level 2
	08:14:38	494.63	881	Detector bias heater off
	08:15:10	495.17	884	Detector bias heater on at level 3
	08:17:50	497.83	881	Detector bias heater off
	08:49:18	529.30	821	Elevate to internal source (stow)
	09:05:18	545.30	862	WFOV BB heater on at temp. 1
	09:21:18	561.30	872	MFOV BB heater on at temp. 1
	10:32:14	632.23	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
01/25/89	10:33:18	633.30	881	Detector bias heater off
	10:33:50	633.83	852	Solar port heaters off
	10:34:22	634.37	821	Elevate to internal source (stow)
	10:34:54	634.90	851	Solar port heaters on
	10:37:02	637.03	882	Detector bias heater on at level 1
	10:40:46	640.77	892	SWICS on at level 3
	10:43:58	643.97	881	Detector bias heater off
	10:47:42	647.70	862	WFOV BB heater on at temp. 1
	10:48:14	648.23	872	MFOV BB heater on at temp. 1
	10:49:18	649.30	891	SWICS off
	11:02:38	662.63	883	Detector bias heater on at level 2
	11:06:22	666.37	893	SWICS on at level 2
	11:09:34	669.57	881	Detector bias heater off
	11:13:18	673.30	863	WFOV BB heater on at temp. 2
	11:13:50	673.83	873	MFOV BB heater on at temp. 2
	11:14:54	674.90	891	SWICS off
	11:28:14	688.23	884	Detector bias heater on at level 3
	11:31:58	691.97	894	SWICS on at level 1
	11:34:06	694.10	881	Detector bias heater off
	11:36:46	696.77	852	Solar port heaters off
	11:37:50	697.83	861	WFOV BB heater off
	11:38:22	698.37	871	MFOV BB heater off

Table 11. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/25/89	11:38:54	698.90	851	Solar port heaters on
	11:39:26	699.43	891	SWICS off
End internal calibration sequence.				
01/25/89	11:50:06	710.10	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
01/25/89	11:54:22	714.37	419	Address azimuth position A
	11:54:54	714.90	2xx	Data command, high byte
	11:55:26	715.43	1xx	Data command, low byte
End azimuth angle load commands ( $A = 160.73^\circ$ ).				
Begin revised solar calibration sequence.				
01/25/89	11:56:30	716.50	822	Elevate to solar ports (Sun)
	12:28:30	748.50	814	Azimuth to position A
	12:29:34	749.57	883	Detector bias heater on at level 2
	12:45:34	765.57	831	SMA shutter cycle on
	13:20:46	800.77	832	SMA shutter cycle off
	13:21:18	801.30	881	Detector bias heater off
	13:40:30	820.50	882	Detector bias heater on at level 1
	13:43:10	823.17	881	Detector bias heater off
	13:43:42	823.70	883	Detector bias heater on at level 2
	13:46:22	826.37	881	Detector bias heater off
	13:46:54	826.90	884	Detector bias heater on at level 3
	13:49:34	829.57	881	Detector bias heater off
	13:50:06	830.10	852	Solar port heaters off
	14:06:06	846.10	851	Solar port heaters on
	14:06:38	846.63	821	Elevate to internal source (stow)
	14:22:38	862.63	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
01/25/89	15:10:38	910.63	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
01/25/89	16:34:54	994.90	882	Detector bias heater on at level 1
	16:37:34	997.57	881	Detector bias heater off
	16:38:06	998.10	883	Detector bias heater on at level 2
	16:40:46	1000.77	881	Detector bias heater off
	16:41:18	1001.30	884	Detector bias heater on at level 3
	16:43:58	1003.97	881	Detector bias heater off
End postcalibration sequence.				
Begin azimuth angle load commands for special SMA sequences.				
01/31/89	09:21:50	561.83	419	Address azimuth position A
	09:22:22	562.37	2xx	Data command, high byte
	09:22:54	562.90	1xx	Data command, low byte
End azimuth angle load commands ( $A=161.78^\circ$ ).				
01/31/89	09:23:26	563.43	814	Azimuth to position A
	10:20:30	620.50	831	SMA shutter cycle on
	12:00:14	720.23	852	Solar port heaters off

Table 11. Continued

(b) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/31/89	13:41:34	821.57	883	Detector bias heater on at level 2
	15:22:54	922.90	851	Solar port heaters on
	17:03:42	1023.70	881	Detector bias heater off
	17:04:14	1024.23	832	SMA shutter cycle off
	17:05:18	1025.30	831	SMA shutter cycle on
	18:07:10	1087.17	832	SMA shutter cycle off
	19:04:46	1144.77	831	SMA shutter cycle on
	19:34:38	1174.63	832	SMA shutter cycle off
	20:43:58	1243.97	831	SMA shutter cycle on
	20:46:06	1246.10	832	SMA shutter cycle off
	20:48:14	1248.23	831	SMA shutter cycle on
	20:52:30	1252.50	832	SMA shutter cycle off
	20:54:38	1254.63	831	SMA shutter cycle on
	20:56:46	1256.77	832	SMA shutter cycle off
	20:57:50	1257.83	831	SMA shutter cycle on
	21:02:06	1262.10	832	SMA shutter cycle off
	21:06:22	1266.37	831	SMA shutter cycle on
	21:10:38	1270.63	832	SMA shutter cycle off
	22:46:06	1366.10	813	Azimuth to 180°

Table 11. Continued

(c) February 1989 through May 1989

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised preinternal calibration sequence.				
02/01/89	07:13:18	433.30	882	Detector bias heater on at level 1
	07:15:58	435.97	881	Detector bias heater off
	07:16:30	436.50	883	Detector bias heater on at level 2
	07:19:10	439.17	881	Detector bias heater off
	07:19:42	439.70	884	Detector bias heater on at level 3
	07:22:22	442.37	881	Detector bias heater off
	07:53:50	473.83	821	Elevate to internal source (stow)
	08:09:50	489.83	862	WFOV BB heater on at temp. 1
	08:25:50	505.83	872	MFOV BB heater on at temp. 1
	09:36:46	576.77	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/01/89	09:37:50	577.83	881	Detector bias heater off
	09:38:22	578.37	852	Solar port heaters off
	09:38:54	578.90	821	Elevate to internal source (stow)
	09:39:26	579.43	851	Solar port heaters on
	09:41:34	581.57	882	Detector bias heater on at level 1
	09:45:18	585.30	892	SWICS on at level 3
	09:48:30	588.50	881	Detector bias heater off
	09:52:14	592.23	862	WFOV BB heater on at temp. 1
	09:52:46	592.77	872	MFOV BB heater on at temp. 1
	09:53:50	593.83	891	SWICS off
	10:07:10	607.17	883	Detector bias heater on at level 2
	10:10:54	610.90	893	SWICS on at level 2
	10:14:06	614.10	881	Detector bias heater off
	10:17:50	617.83	863	WFOV BB heater on at temp. 2
	10:18:22	618.37	873	MFOV BB heater on at temp. 2
	10:19:26	619.43	891	SWICS off
	10:32:46	632.77	884	Detector bias heater on at level 3
	10:36:30	636.50	894	SWICS on at level 1
	10:38:38	638.63	881	Detector bias heater off
	10:41:18	641.30	852	Solar port heaters off
	10:42:22	642.37	861	WFOV BB heater off
	10:42:54	642.90	871	MFOV BB heater off
	10:43:26	643.43	851	Solar port heaters on
	10:43:58	643.97	891	SWICS off
End internal calibration sequence.				
02/01/89	10:54:38	654.63	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
02/01/89	10:58:54	658.90	419	Address azimuth position A
	10:59:26	659.43	2xx	Data command, high byte
	10:59:58	659.97	1xx	Data command, low byte
End azimuth angle load commands (A = 161.93°).				

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin revised solar calibration sequence.				
02/01/89	11:01:02	661.03	822	Elevate to solar ports (Sun)
	12:42:22	762.37	881	Detector bias heater off
	12:45:02	765.03	882	Detector bias heater on at level 1
	12:47:42	767.70	881	Detector bias heater off
	12:48:14	768.23	883	Detector bias heater on at level 2
	12:50:54	770.90	881	Detector bias heater off
	12:51:26	771.43	884	Detector bias heater on at level 3
	12:54:06	774.10	881	Detector bias heater off
	12:54:38	774.63	852	Solar port heaters off
	13:10:38	790.63	851	Solar port heaters on
	13:11:10	791.17	821	Elevate to internal source (stow)
	13:27:10	807.17	813	Azimuth to 180°
End revised solar calibration sequence.				
02/01/89	14:15:10	855.17	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/01/89	15:39:26	939.43	882	Detector bias heater on at level 1
	15:42:06	942.10	881	Detector bias heater off
	15:42:38	942.63	883	Detector bias heater on at level 2
	15:45:18	945.30	881	Detector bias heater off
	15:45:50	945.83	884	Detector bias heater on at level 3
	15:48:30	948.50	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
02/15/89	08:43:58	523.97	882	Detector bias heater on at level 1
	08:46:38	526.63	881	Detector bias heater off
	08:47:10	527.17	883	Detector bias heater on at level 2
	08:49:50	529.83	881	Detector bias heater off
	08:50:22	530.37	884	Detector bias heater on at level 3
	08:53:02	533.03	881	Detector bias heater off
	09:24:30	564.50	821	Elevate to internal source (stow)
	09:40:30	580.50	862	WFOV BB heater on at temp. 1
	09:56:30	596.50	872	MFOV BB heater on at temp. 1
	11:07:26	667.43	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
02/15/89	11:08:30	668.50	881	Detector bias heater off
	11:09:02	669.03	852	Solar port heaters off
	11:09:34	669.57	821	Elevate to internal source (stow)
	11:10:06	670.10	851	Solar port heaters on
	11:12:14	672.23	882	Detector bias heater on at level 1
	11:15:58	675.97	892	SWICS on at level 3
	11:19:10	679.17	881	Detector bias heater off
	11:22:54	682.90	862	WFOV BB heater on at temp. 1
	11:23:26	683.43	872	MFOV BB heater on at temp. 1



Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/15/89	11:24:30	684.50	891	SWICS off
	11:37:50	697.83	883	Detector bias heater on at level 2
	11:41:34	701.57	893	SWICS on at level 2
	11:44:46	704.77	881	Detector bias heater off
	11:48:30	708.50	863	WFOV BB heater on at temp. 2
	11:49:02	709.03	873	MFOV BB heater on at temp. 2
	11:50:06	710.10	891	SWICS off
	12:03:26	723.43	884	Detector bias heater on at level 3
	12:07:10	727.17	894	SWICS on at level 1
	12:09:18	729.30	881	Detector bias heater off
	12:11:58	731.97	852	Solar port heaters off
	12:13:02	733.03	861	WFOV BB heater off
	12:13:34	733.57	871	MFOV BB heater off
	12:14:06	734.10	851	Solar port heaters on
	12:14:38	734.63	891	SWICS off
End internal calibration sequence.				
02/15/89	12:25:18	745.30	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
02/15/89	12:29:34	749.57	419	Address azimuth position A
	12:30:06	750.10	2xx	Data command, high byte
	12:30:38	750.63	1xx	Data command, low byte
End azimuth angle load commands ( $A = 163.58^\circ$ ).				
Begin revised solar calibration sequence.				
02/15/89	12:31:42	751.70	822	Elevate to solar ports (Sun)
	13:03:42	783.70	814	Azimuth to position A
	13:04:46	784.77	883	Detector bias heater on at level 2
	13:20:46	800.77	831	SMA shutter cycle on
	13:55:58	835.97	832	SMA shutter cycle off
	13:56:30	836.50	881	Detector bias heater off
	14:15:42	855.70	882	Detector bias heater on at level 1
	14:18:22	858.37	881	Detector bias heater off
	14:18:54	858.90	883	Detector bias heater on at level 2
	14:21:34	861.57	881	Detector bias heater off
	14:22:06	862.10	884	Detector bias heater on at level 3
	14:24:46	864.77	881	Detector bias heater off
	14:25:18	865.30	852	Solar port heaters off
	14:41:18	881.30	851	Solar port heaters on
	14:41:50	881.83	821	Elevate to internal source (stow)
	14:57:50	897.83	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
02/15/89	15:45:50	945.83	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
02/15/89	17:10:06	1030.10	882	Detector bias heater on at level 1
	17:12:46	1032.77	881	Detector bias heater off
	17:13:18	1033.30	883	Detector bias heater on at level 2

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
02/15/89	17:15:58	1035.97	881	Detector bias heater off
	17:16:30	1036.50	884	Detector bias heater on at level 3
	17:19:10	1039.17	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
03/01/89	08:31:09	511.15	882	Detector bias heater on at level 1
	08:33:49	513.82	881	Detector bias heater off
	08:34:21	514.35	883	Detector bias heater on at level 2
	08:37:01	517.02	881	Detector bias heater off
	08:37:33	517.55	884	Detector bias heater on at level 3
	08:40:13	520.22	881	Detector bias heater off
	09:11:41	551.68	821	Elevate to internal source (stow)
	09:27:41	567.68	862	WFOV BB heater on at temp. 1
	09:43:41	583.68	872	MFOV BB heater on at temp. 1
	10:54:37	654.62	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
03/01/89	10:55:41	655.68	881	Detector bias heater off
	10:56:13	656.22	852	Solar port heaters off
	10:56:45	656.75	821	Elevate to internal source (stow)
	10:57:17	657.28	851	Solar port heaters on
	10:59:25	659.42	882	Detector bias heater on at level 1
	11:03:09	663.15	892	SWICS on at level 3
	11:06:21	666.35	881	Detector bias heater off
	11:10:05	670.08	862	WFOV BB heater on at temp. 1
	11:10:37	670.62	872	MFOV BB heater on at temp. 1
	11:11:41	671.68	891	SWICS off
	11:25:01	685.02	883	Detector bias heater on at level 2
	11:28:45	688.75	893	SWICS on at level 2
	11:31:57	691.95	881	Detector bias heater off
	11:35:41	695.68	863	WFOV BB heater on at temp. 2
	11:36:13	696.22	873	MFOV BB heater on at temp. 2
	11:37:17	697.28	891	SWICS off
	11:50:37	710.62	884	Detector bias heater on at level 3
	11:54:21	714.35	894	SWICS on at level 1
	11:56:29	716.48	881	Detector bias heater off
	11:59:09	719.15	852	Solar port heaters off
	12:00:13	720.22	861	WFOV BB heater off
	12:00:45	720.75	871	MFOV BB heater off
	12:01:17	721.28	851	Solar port heaters on
	12:01:49	721.82	891	SWICS off
End internal calibration sequence.				
03/01/89	12:12:29	732.48	823	Elevate to nadir (Earth)

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin azimuth angle load commands for solar calibration.				
03/01/89	12:16:45	736.75	419	Address azimuth position A
	12:17:17	737.28	2xx	Data command, high byte
	12:17:49	737.82	1xx	Data command, low byte
End azimuth angle load commands (A = 163.28°).				
Begin revised solar calibration sequence.				
03/01/89	12:18:53	738.88	822	Elevate to solar ports (Sun)
	12:50:53	770.88	814	Azimuth to position A
	12:51:57	771.95	883	Detector bias heater on at level 2
	13:07:57	787.95	831	SMA shutter cycle on
	13:43:09	823.15	832	SMA shutter cycle off
	13:43:41	823.68	881	Detector bias heater off
	14:02:53	842.88	882	Detector bias heater on at level 1
	14:05:33	845.55	881	Detector bias heater off
	14:06:05	846.08	883	Detector bias heater on at level 2
	14:08:45	848.75	881	Detector bias heater off
	14:09:17	849.28	884	Detector bias heater on at level 3
	14:11:57	851.95	881	Detector bias heater off
	14:12:29	852.48	852	Solar port heaters off
	14:28:29	868.48	851	Solar port heaters on
	14:29:01	869.02	821	Elevate to internal source (stow)
	14:45:01	885.02	813	Azimuth to 180°
End revised solar calibration sequence.				
03/01/89	15:33:01	933.02	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/01/89	16:57:17	1017.28	882	Detector bias heater on at level 1
	16:59:57	1019.95	881	Detector bias heater off
	17:00:29	1020.48	883	Detector bias heater on at level 2
	17:03:09	1023.15	881	Detector bias heater off
	17:03:41	1023.68	884	Detector bias heater on at level 3
	17:06:21	1026.35	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
03/15/89	08:17:18	497.30	882	Detector bias heater on at level 1
	08:19:58	499.97	881	Detector bias heater off
	08:20:30	500.50	883	Detector bias heater on at level 2
	08:23:10	503.17	881	Detector bias heater off
	08:23:42	503.70	884	Detector bias heater on at level 3
	08:26:22	506.37	881	Detector bias heater off
	08:57:50	537.83	821	Elevate to internal source (stow)
	09:13:50	553.83	862	WFOV BB heater on at temp. 1
	09:29:50	569.83	872	MFOV BB heater on at temp. 1
	10:40:46	640.77	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
03/15/89	10:41:50	641.83	881	Detector bias heater off
	10:42:22	642.37	852	Solar port heaters off
	10:42:54	642.90	821	Elevate to internal source (stow)
	10:43:26	643.43	851	Solar port heaters on
	10:45:34	645.57	882	Detector bias heater on at level 1
	10:49:18	649.30	892	SWICS on at level 3
	10:52:30	652.50	881	Detector bias heater off
	10:56:14	656.23	862	WFOV BB heater on at temp. 1
	10:56:46	656.77	872	MFOV BB heater on at temp. 1
	10:57:50	657.83	891	SWICS off
	11:11:10	671.17	883	Detector bias heater on at level 2
	11:14:54	674.90	893	SWICS on at level 2
	11:18:06	678.10	881	Detector bias heater off
	11:21:50	681.83	863	WFOV BB heater on at temp. 2
	11:22:22	682.37	873	MFOV BB heater on at temp. 2
	11:23:26	683.43	891	SWICS off
	11:36:46	696.77	884	Detector bias heater on at level 3
	11:40:30	700.50	894	SWICS on at level 1
	11:42:38	702.63	881	Detector bias heater off
	11:45:18	705.30	852	Solar port heaters off
	11:46:22	706.37	861	WFOV BB heater off
	11:46:54	706.90	871	MFOV BB heater off
	11:47:26	707.43	851	Solar port heaters on
	11:47:58	707.97	891	SWICS off
End internal calibration sequence.				
03/15/89	11:58:38	718.63	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
03/15/89	12:02:54	722.90	419	Address azimuth position A
	12:03:26	723.43	2xx	Data command, high byte
	12:03:58	723.97	1xx	Data command, low byte
End azimuth angle load commands (A = 161.03°).				
Begin revised solar calibration sequence.				
03/15/89	12:05:02	725.03	822	Elevate to solar ports (Sun)
	12:37:02	757.03	814	Azimuth to position A
	12:38:06	758.10	883	Detector bias heater on at level 2
	12:54:06	774.10	831	SMA shutter cycle on
	13:29:18	809.30	832	SMA shutter cycle off
	13:29:50	809.83	881	Detector bias heater off
	13:49:02	829.03	882	Detector bias heater on at level 1
	13:51:42	831.70	881	Detector bias heater off
	13:52:14	832.23	883	Detector bias heater on at level 2
	13:54:54	834.90	881	Detector bias heater off
	13:55:26	835.43	884	Detector bias heater on at level 3
	13:58:06	838.10	881	Detector bias heater off

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/15/89	13:58:38	838.63	852	Solar port heaters off
	14:14:38	854.63	851	Solar port heaters on
	14:15:10	855.17	821	Elevate to internal source (stow)
	14:31:10	871.17	813	Azimuth to 180°
End revised solar calibration sequence.				
03/15/89	15:19:10	919.17	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/15/89	16:43:26	1003.43	882	Detector bias heater on at level 1
	16:46:06	1006.10	881	Detector bias heater off
	16:46:38	1006.63	883	Detector bias heater on at level 2
	16:49:18	1009.30	881	Detector bias heater off
	16:49:50	1009.83	884	Detector bias heater on at level 3
	16:52:30	1012.50	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
03/29/89	08:03:58	483.97	882	Detector bias heater on at level 1
	08:06:38	486.63	881	Detector bias heater off
	08:07:10	487.17	883	Detector bias heater on at level 2
	08:09:50	489.83	881	Detector bias heater off
	08:10:22	490.37	884	Detector bias heater on at level 3
	08:13:02	493.03	881	Detector bias heater off
	08:44:30	524.50	821	Elevate to internal source (stow)
	09:00:30	540.50	862	WFOV BB heater on at temp. 1
	09:16:30	556.50	872	MFOV BB heater on at temp. 1
	10:27:26	627.43	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
03/29/89	10:28:30	628.50	881	Detector bias heater off
	10:29:02	629.03	852	Solar port heaters off
	10:29:34	629.57	821	Elevate to internal source (stow)
	10:30:06	630.10	851	Solar port heaters on
	10:32:14	632.23	882	Detector bias heater on at level 1
	10:35:58	635.97	892	SWICS on at level 3
	10:39:10	639.17	881	Detector bias heater off
	10:42:54	642.90	862	WFOV BB heater on at temp. 1
	10:43:26	643.43	872	MFOV BB heater on at temp. 1
	10:44:30	644.50	891	SWICS off
	10:57:50	657.83	883	Detector bias heater on at level 2
	11:01:34	661.57	893	SWICS on at level 2
	11:04:46	664.77	881	Detector bias heater off
	11:08:30	668.50	863	WFOV BB heater on at temp. 2
	11:09:02	669.03	873	MFOV BB heater on at temp. 2
	11:10:06	670.10	891	SWICS off
	11:23:26	683.43	884	Detector bias heater on at level 3
	11:27:10	687.17	894	SWICS on at level 1

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/29/89	11:29:18	689.30	881	Detector bias heater off
	11:31:58	691.97	852	Solar port heaters off
	11:33:02	693.03	861	WFOV BB heater off
	11:33:34	693.57	871	MFOV BB heater off
	11:34:06	694.10	851	Solar port heaters on
	11:34:38	694.63	891	SWICS off
End internal calibration sequence.				
03/29/89	11:45:18	705.30	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
03/29/89	11:49:34	709.57	419	Address azimuth position A
	11:50:06	710.10	2xx	Data command, high byte
	11:50:38	710.63	1xx	Data command, low byte
End azimuth angle load commands (A = 157.43°).				
Begin revised solar calibration sequence.				
03/29/89	11:51:42	711.70	822	Elevate to solar ports (Sun)
	12:23:42	743.70	814	Azimuth to position A
	12:24:46	744.77	883	Detector bias heater on at level 2
	12:40:46	760.77	831	SMA shutter cycle on
	13:15:58	795.97	832	SMA shutter cycle off
	13:16:30	796.50	881	Detector bias heater off
	13:35:42	815.70	882	Detector bias heater on at level 1
	13:38:22	818.37	881	Detector bias heater off
	13:38:54	818.90	883	Detector bias heater on at level 2
	13:41:34	821.57	881	Detector bias heater off
	13:42:06	822.10	884	Detector bias heater on at level 3
	13:44:46	824.77	881	Detector bias heater off
	13:45:18	825.30	852	Solar port heaters off
	14:01:18	841.30	851	Solar port heaters on
	14:01:50	841.83	821	Elevate to internal source (stow)
	14:17:50	857.83	813	Azimuth to 180°
End revised solar calibration sequence.				
03/29/89	15:05:50	905.83	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
03/29/89	16:30:06	990.10	882	Detector bias heater on at level 1
	16:32:46	992.77	881	Detector bias heater off
	16:33:18	993.30	883	Detector bias heater on at level 2
	16:35:58	995.97	881	Detector bias heater off
	16:36:30	996.50	884	Detector bias heater on at level 3
	16:39:10	999.17	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
04/12/89	07:50:39	470.65	882	Detector bias heater on at level 1
	07:53:19	473.32	881	Detector bias heater off
	07:53:51	473.85	883	Detector bias heater on at level 2
	07:56:31	476.52	881	Detector bias heater off

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/12/89	07:57:03	477.05	884	Detector bias heater on at level 3
	07:59:43	479.72	881	Detector bias heater off
	08:31:11	511.18	821	Elevate to internal source (stow)
	08:47:11	527.18	862	WFOV BB heater on at temp. 1
	09:03:11	543.18	872	MFOV BB heater on at temp. 1
	10:14:07	614.12	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
04/12/89	10:15:11	615.18	881	Detector bias heater off
	10:15:43	615.72	852	Solar port heaters off
	10:16:15	616.25	821	Elevate to internal source (stow)
	10:16:47	616.78	851	Solar port heaters on
	10:18:55	618.92	882	Detector bias heater on at level 1
	10:22:39	622.65	892	SWICS on at level 3
	10:25:51	625.85	881	Detector bias heater off
	10:29:35	629.58	862	WFOV BB heater on at temp. 1
	10:30:07	630.12	872	MFOV BB heater on at temp. 1
	10:31:11	631.18	891	SWICS off
	10:44:31	644.52	883	Detector bias heater on at level 2
	10:48:15	648.25	893	SWICS on at level 2
	10:51:27	651.45	881	Detector bias heater off
	10:55:11	655.18	863	WFOV BB heater on at temp. 2
	10:55:43	655.72	873	MFOV BB heater on at temp. 2
	10:56:47	656.78	891	SWICS off
	11:10:07	670.12	884	Detector bias heater on at level 3
	11:13:51	673.85	894	SWICS on at level 1
	11:15:59	675.98	881	Detector bias heater off
	11:18:39	678.65	852	Solar port heaters off
04/12/89	11:19:43	679.72	861	WFOV BB heater off
	11:20:15	680.25	871	MFOV BB heater off
	11:20:47	680.78	851	Solar port heaters on
	11:21:19	681.32	891	SWICS off
End internal calibration sequence.				
04/12/89	11:31:59	691.98	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
04/12/89	11:36:15	696.25	419	Address azimuth position A
	11:36:47	696.78	2xx	Data command, high byte
	11:37:19	697.32	1xx	Data command, low byte
End azimuth angle load commands ( $A = 153.30^\circ$ ).				
Begin revised solar calibration sequence.				
04/12/89	11:38:23	698.38	822	Elevate to solar ports (Sun)
	12:10:23	730.38	814	Azimuth to position A
	12:11:27	731.45	883	Detector bias heater on at level 2
	12:27:27	747.45	831	SMA shutter cycle on
	13:02:39	782.65	832	SMA shutter cycle off

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/12/89	13:03:11	783.18	881	Detector bias heater off
	13:22:23	802.38	882	Detector bias heater on at level 1
	13:25:03	805.05	881	Detector bias heater off
	13:25:35	805.58	883	Detector bias heater on at level 2
	13:28:15	808.25	881	Detector bias heater off
	13:28:47	808.78	884	Detector bias heater on at level 3
	13:31:27	811.45	881	Detector bias heater off
	13:31:59	811.98	852	Solar port heaters off
	13:47:59	827.98	851	Solar port heaters on
	13:48:31	828.52	821	Elevate to internal source (stow)
	14:04:31	844.52	813	Azimuth to 180°
End revised solar calibration sequence.				
04/12/89	14:52:31	892.52	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
04/12/89	16:16:47	976.78	882	Detector bias heater on at level 1
	16:19:27	979.45	881	Detector bias heater off
	16:19:59	979.98	883	Detector bias heater on at level 2
	16:22:39	982.65	881	Detector bias heater off
	16:23:11	983.18	884	Detector bias heater on at level 3
	16:25:51	985.85	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
04/26/89	07:37:18	457.30	882	Detector bias heater on at level 1
	07:39:58	459.97	881	Detector bias heater off
	07:40:30	460.50	883	Detector bias heater on at level 2
	07:43:10	463.17	881	Detector bias heater off
	07:43:42	463.70	884	Detector bias heater on at level 3
	07:46:22	466.37	881	Detector bias heater off
	08:17:50	497.83	821	Elevate to internal source (stow)
	08:33:50	513.83	862	WFOV BB heater on at temp. 1
	08:49:50	529.83	872	MFOV BB heater on at temp. 1
	10:00:46	600.77	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
04/26/89	10:01:50	601.83	881	Detector bias heater off
	10:02:22	602.37	852	Solar port heaters off
	10:02:54	602.90	821	Elevate to internal source (stow)
	10:03:26	603.43	851	Solar port heaters on
	10:05:34	605.57	882	Detector bias heater on at level 1
	10:09:18	609.30	892	SWICS on at level 3
	10:12:30	612.50	881	Detector bias heater off
	10:16:14	616.23	862	WFOV BB heater on at temp. 1
	10:16:46	616.77	872	MFOV BB heater on at temp. 1
	10:17:50	617.83	891	SWICS off
	10:31:10	631.17	883	Detector bias heater on at level 2



Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/26/89	10:34:54	634.90	893	SWICS on at level 2
	10:38:06	638.10	881	Detector bias heater off
	10:41:50	641.83	863	WFOV BB heater on at temp. 2
	10:42:22	642.37	873	MFOV BB heater on at temp. 2
	10:43:26	643.43	891	SWICS off
	10:56:46	656.77	884	Detector bias heater on at level 3
	11:00:30	660.50	894	SWICS on at level 1
	11:02:38	662.63	881	Detector bias heater off
	11:05:18	665.30	852	Solar port heaters off
	11:06:22	666.37	861	WFOV BB heater off
	11:06:54	666.90	871	MFOV BB heater off
	11:07:26	667.43	851	Solar port heaters on
	11:07:58	667.97	891	SWICS off
End internal calibration sequence.				
04/26/89	11:18:38	678.63	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
04/26/89	11:22:54	682.90	419	Address azimuth position A
	11:23:26	683.43	2xx	Data command, high byte
	11:23:58	683.97	1xx	Data command, low byte
End azimuth angle load commands (A = 149.40°).				
Begin revised solar calibration sequence.				
04/26/89	11:25:02	685.03	822	Elevate to solar ports (Sun)
	11:57:02	717.03	814	Azimuth to position A
	11:58:06	718.10	883	Detector bias heater on at level 2
	12:14:06	734.10	831	SMA shutter cycle on
	13:28:46	808.77	852	Solar port heaters off
	13:34:38	814.63	851	Solar port heaters on
	13:35:10	815.17	821	Elevate to internal source (stow)
	13:51:10	831.17	813	Azimuth to 180°
End revised solar calibration sequence (data dropouts obscured some commands).				
04/26/89	14:39:10	879.17	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
04/26/89	16:03:26	963.43	882	Detector bias heater on at level 1
	16:06:06	966.10	881	Detector bias heater off
	16:06:38	966.63	883	Detector bias heater on at level 2
	16:09:18	969.30	881	Detector bias heater off
	16:09:50	969.83	884	Detector bias heater on at level 3
	16:12:30	972.50	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
05/10/89	07:25:34	445.57	882	Detector bias heater on at level 1
	07:28:14	448.23	881	Detector bias heater off
	07:28:46	448.77	883	Detector bias heater on at level 2
	07:31:26	451.43	881	Detector bias heater off
	07:31:58	451.97	884	Detector bias heater on at level 3

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/10/89	07:34:38	454.63	881	Detector bias heater off
	08:06:06	486.10	821	Elevate to internal source (stow)
	08:22:06	502.10	862	WFOV BB heater on at temp. 1
	08:38:06	518.10	872	MFOV BB heater on at temp. 1
	09:49:02	589.03	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/10/89	09:50:06	590.10	881	Detector bias heater off
	09:50:38	590.63	852	Solar port heaters off
	09:51:10	591.17	821	Elevate to internal source (stow)
	09:51:42	591.70	851	Solar port heaters on
	09:53:50	593.83	882	Detector bias heater on at level 1
	09:57:34	597.57	892	SWICS on at level 3
	10:00:46	600.77	881	Detector bias heater off
	10:04:30	604.50	862	WFOV BB heater on at temp. 1
	10:05:02	605.03	872	MFOV BB heater on at temp. 1
	10:06:06	606.10	891	SWICS off
	10:19:26	619.43	883	Detector bias heater on at level 2
	10:23:10	623.17	893	SWICS on at level 2
	10:26:22	626.37	881	Detector bias heater off
	10:30:06	630.10	863	WFOV BB heater on at temp. 2
	10:30:38	630.63	873	MFOV BB heater on at temp. 2
	10:31:42	631.70	891	SWICS off
	10:45:02	645.03	884	Detector bias heater on at level 3
	10:48:46	648.77	894	SWICS on at level 1
	10:50:54	650.90	881	Detector bias heater off
	10:53:34	653.57	852	Solar port heaters off
05/10/89	10:54:38	654.63	861	WFOV BB heater off
	10:55:10	655.17	871	MFOV BB heater off
	10:55:42	655.70	851	Solar port heaters on
	10:56:14	656.23	891	SWICS off
End internal calibration sequence.				
05/10/89	11:06:54	666.90	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
05/10/89	11:11:10	671.17	419	Address azimuth position A
	11:11:42	671.70	2xx	Data command, high byte
	11:12:14	672.23	1xx	Data command, low byte
End azimuth angle load commands (A = 146.18°).				
Begin revised solar calibration sequence.				
05/10/89	11:13:18	673.30	822	Elevate to solar ports (Sun)
	11:45:18	705.30	814	Azimuth to position A
	11:46:22	706.37	883	Detector bias heater on at level 2
	12:02:22	722.37	831	SMA shutter cycle on
	12:37:34	757.57	832	SMA shutter cycle off
	12:38:06	758.10	881	Detector bias heater off

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/10/89	12:57:18	777.30	882	Detector bias heater on at level 1
	12:59:58	779.97	881	Detector bias heater off
	13:00:30	780.50	883	Detector bias heater on at level 2
	13:03:10	783.17	881	Detector bias heater off
	13:03:42	783.70	884	Detector bias heater on at level 3
	13:06:22	786.37	881	Detector bias heater off
	13:06:54	786.90	852	Solar port heaters off
	13:22:54	802.90	851	Solar port heaters on
	13:23:26	803.43	821	Elevate to internal source (stow)
	13:39:26	819.43	813	Azimuth to 180°
End revised solar calibration sequence.				
05/10/89	14:27:26	867.43	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/10/89	15:51:42	951.70	882	Detector bias heater on at level 1
	15:54:22	954.37	881	Detector bias heater off
	15:54:54	954.90	883	Detector bias heater on at level 2
	15:57:34	957.57	881	Detector bias heater off
	15:58:06	958.10	884	Detector bias heater on at level 3
	16:00:46	960.77	881	Detector bias heater off
End postcalibration sequence.				
Begin revised preinternal calibration sequence.				
05/24/89	07:13:18	433.30	882	Detector bias heater on at level 1
	07:15:58	435.97	881	Detector bias heater off
	07:16:30	436.50	883	Detector bias heater on at level 2
	07:19:10	439.17	881	Detector bias heater off
	07:19:42	439.70	884	Detector bias heater on at level 3
	07:22:22	442.37	881	Detector bias heater off
	07:53:50	473.83	821	Elevate to internal source (stow)
	08:09:50	489.83	862	WFOV BB heater on at temp. 1
	08:25:50	505.83	872	MFOV BB heater on at temp. 1
	09:36:46	576.77	823	Elevate to nadir (Earth)
End revised preinternal calibration sequence.				
Begin internal calibration sequence.				
05/24/89	09:37:50	577.83	881	Detector bias heater off
	09:38:22	578.37	852	Solar port heaters off
	09:38:54	578.90	821	Elevate to internal source (stow)
	09:39:26	579.43	851	Solar port heaters on
	09:41:34	581.57	882	Detector bias heater on at level 1
	09:45:18	585.30	892	SWICS on at level 3
	09:48:30	588.50	881	Detector bias heater off
	09:52:14	592.23	862	WFOV BB heater on at temp. 1
	09:52:46	592.77	872	MFOV BB heater on at temp. 1
	09:53:50	593.83	891	SWICS off
	10:07:10	607.17	883	Detector bias heater on at level 2
	10:10:54	610.90	893	SWICS on at level 2

Table 11. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/24/89	10:14:06	614.10	881	Detector bias heater off
	10:17:50	617.83	863	WFOV BB heater on at temp. 2
	10:18:22	618.37	873	MFOV BB heater on at temp. 2
	10:19:26	619.43	891	SWICS off
	10:32:46	632.77	884	Detector bias heater on at level 3
	10:36:30	636.50	894	SWICS on at level 1
	10:38:38	638.63	881	Detector bias heater off
	10:41:18	641.30	852	Solar port heaters off
	10:42:22	642.37	861	WFOV BB heater off
	10:42:54	642.90	871	MFOV BB heater off
	10:43:26	643.43	851	Solar port heaters on
	10:43:58	643.97	891	SWICS off
End internal calibration sequence.				
05/24/89	10:54:38	654.63	823	Elevate to nadir (Earth)
Begin azimuth angle load commands for solar calibration.				
05/24/89	10:58:54	658.90	419	Address azimuth position A
	10:59:26	659.43	2xx	Data command, high byte
	10:59:58	659.97	1xx	Data command, low byte
End azimuth angle load commands ( $A = 143.85^\circ$ ).				
Begin revised solar calibration sequence.				
05/24/89	11:01:02	661.03	822	Elevate to solar ports (Sun)
	11:33:02	693.03	814	Azimuth to position A
	11:34:06	694.10	883	Detector bias heater on at level 2
	11:50:06	710.10	831	SMA shutter cycle on
	12:25:18	745.30	832	SMA shutter cycle off
	12:25:50	745.83	881	Detector bias heater off
	12:45:02	765.03	882	Detector bias heater on at level 1
	12:47:42	767.70	881	Detector bias heater off
	12:48:14	768.23	883	Detector bias heater on at level 2
	12:50:54	770.90	881	Detector bias heater off
	12:51:26	771.43	884	Detector bias heater on at level 3
	12:54:06	774.10	881	Detector bias heater off
	12:54:38	774.63	852	Solar port heaters off
	13:10:38	790.63	851	Solar port heaters on
	13:11:10	791.17	821	Elevate to internal source (stow)
	13:27:10	807.17	813	Azimuth to $180^\circ$
End revised solar calibration sequence.				
05/24/89	14:15:10	855.17	823	Elevate to nadir (Earth)
Begin postcalibration sequence.				
05/24/89	15:39:26	939.43	882	Detector bias heater on at level 1
	15:42:06	942.10	881	Detector bias heater off
	15:42:38	942.63	883	Detector bias heater on at level 2
	15:45:18	945.30	881	Detector bias heater off

Table 11. Concluded

(c) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/24/89	15:45:50	945.83	884	Detector bias heater on at level 3
	15:48:30	948.50	881	Detector bias heater off
End postcalibration sequence.				

Table 12. Operational Commands Executed by Scanner Instrument on NOAA 10 Spacecraft  
From February 1987 Through May 1989

(a) February 1987 through January 1988

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/04/87	09:49:31	589.52	8A1	Begin internal calibration
	09:50:03	590.05	897	SWICS on at level 1 modulated
	09:51:39	591.65	895	SWICS on at level 2 modulated
	09:53:15	593.25	893	SWICS on at level 3 modulated
	09:54:51	594.85	891	SWICS off
	09:58:03	598.05	897	SWICS on at level 1 modulated
	09:59:39	599.65	895	SWICS on at level 2 modulated
	10:01:15	601.25	893	SWICS on at level 3 modulated
	10:02:51	602.85	891	SWICS off
	10:22:03	622.05	897	SWICS on at level 1 modulated
	10:23:39	623.65	895	SWICS on at level 2 modulated
	10:25:15	625.25	893	SWICS on at level 3 modulated
10:26:51	626.85	891	SWICS off	
End internal calibration sequence.				
Begin internal calibration sequence.				
02/18/87	09:42:35	582.58	8A1	Begin internal calibration
	09:43:07	583.12	897	SWICS on at level 1 modulated
	09:44:43	584.72	895	SWICS on at level 2 modulated
	09:46:19	586.32	893	SWICS on at level 3 modulated
	09:47:55	587.92	891	SWICS off
	09:51:07	591.12	897	SWICS on at level 1 modulated
	09:52:43	592.72	895	SWICS on at level 2 modulated
	09:54:19	594.32	893	SWICS on at level 3 modulated
	09:55:55	595.92	891	SWICS off
	10:15:07	615.12	897	SWICS on at level 1 modulated
	10:16:43	616.72	895	SWICS on at level 2 modulated
	10:18:19	618.32	893	SWICS on at level 3 modulated
10:19:55	619.92	891	SWICS off	
End internal calibration sequence.				
Begin internal calibration sequence.				
03/04/87	09:34:35	574.58	8A1	Begin internal calibration
	09:35:07	575.12	897	SWICS on at level 1 modulated
	09:36:43	576.72	895	SWICS on at level 2 modulated
	09:38:19	578.32	893	SWICS on at level 3 modulated
	09:39:55	579.92	891	SWICS off
	09:43:07	583.12	897	SWICS on at level 1 modulated
	09:44:43	584.72	895	SWICS on at level 2 modulated
	09:46:19	586.32	893	SWICS on at level 3 modulated
	09:47:55	587.92	891	SWICS off
	10:07:07	607.12	897	SWICS on at level 1 modulated
10:08:43	608.72	895	SWICS on at level 2 modulated	

Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
03/04/87	10:10:19	610.32	893	SWICS on at level 3 modulated
	10:11:55	611.92	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/18/87	11:06:51	666.85	8A1	Begin internal calibration
	11:07:23	667.38	897	SWICS on at level 1 modulated
	11:08:59	668.98	895	SWICS on at level 2 modulated
	11:10:35	670.58	893	SWICS on at level 3 modulated
	11:12:11	672.18	891	SWICS off
	11:15:23	675.38	897	SWICS on at level 1 modulated
	11:16:59	676.98	895	SWICS on at level 2 modulated
	11:18:35	678.58	893	SWICS on at level 3 modulated
	11:20:11	680.18	891	SWICS off
	11:39:23	699.38	897	SWICS on at level 1 modulated
	11:40:59	700.98	895	SWICS on at level 2 modulated
	11:42:35	702.58	893	SWICS on at level 3 modulated
	11:44:11	704.18	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/01/87	10:58:51	658.85	8A1	Begin internal calibration
	10:59:23	659.38	897	SWICS on at level 1 modulated
	11:00:59	660.98	895	SWICS on at level 2 modulated
	11:02:35	662.58	893	SWICS on at level 3 modulated
	11:04:11	664.18	891	SWICS off
	11:07:23	667.38	897	SWICS on at level 1 modulated
	11:08:59	668.98	895	SWICS on at level 2 modulated
	11:10:35	670.58	893	SWICS on at level 3 modulated
	11:12:11	672.18	891	SWICS off
	11:31:23	691.38	897	SWICS on at level 1 modulated
	11:32:59	692.98	895	SWICS on at level 2 modulated
	11:34:35	694.58	893	SWICS on at level 3 modulated
	11:36:11	696.18	891	SWICS off
End internal calibration sequence.				
04/21/87	17:44:02	1064.20	811	Azimuth to 0°
Begin internal calibration sequence.				
04/29/87	10:46:04	646.07	8A1	Begin internal calibration
	10:46:36	646.60	897	SWICS on at level 1 modulated
	10:48:12	648.20	895	SWICS on at level 2 modulated
	10:49:48	649.80	893	SWICS on at level 3 modulated
	10:51:24	651.40	891	SWICS off
	10:54:36	654.60	897	SWICS on at level 1 modulated
	10:56:12	656.20	895	SWICS on at level 2 modulated
	10:57:48	657.80	893	SWICS on at level 3 modulated
	10:59:24	659.40	891	SWICS off
	11:18:36	678.60	897	SWICS on at level 1 modulated

Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/29/87	11:20:12	680.20	895	SWICS on at level 2 modulated
	11:21:48	681.80	893	SWICS on at level 3 modulated
	11:23:24	683.40	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/13/87	10:40:12	640.20	8A1	Begin internal calibration
	10:40:44	640.73	897	SWICS on at level 1 modulated
	10:42:20	642.33	895	SWICS on at level 2 modulated
	10:43:56	643.93	893	SWICS on at level 3 modulated
	10:45:32	645.53	891	SWICS off
	10:48:44	648.73	897	SWICS on at level 1 modulated
	10:50:20	650.33	895	SWICS on at level 2 modulated
	10:51:56	651.93	893	SWICS on at level 3 modulated
	10:53:32	653.53	891	SWICS off
	11:12:44	672.73	897	SWICS on at level 1 modulated
	11:14:20	674.33	895	SWICS on at level 2 modulated
	11:15:56	675.93	893	SWICS on at level 3 modulated
	11:17:32	677.53	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/27/87	10:00:44	600.73	8A1	Begin internal calibration
	10:01:16	601.27	897	SWICS on at level 1 modulated
	10:02:52	602.87	895	SWICS on at level 2 modulated
	10:04:28	604.47	893	SWICS on at level 3 modulated
	10:06:04	606.07	891	SWICS off
	10:09:16	609.27	897	SWICS on at level 1 modulated
	10:10:52	610.87	895	SWICS on at level 2 modulated
	10:12:28	612.47	893	SWICS on at level 3 modulated
	10:14:04	614.07	891	SWICS off
	10:33:16	633.27	897	SWICS on at level 1 modulated
	10:34:52	634.87	895	SWICS on at level 2 modulated
	10:36:28	636.47	893	SWICS on at level 3 modulated
	10:38:04	638.07	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
06/10/87	12:00:44	720.73	8A1	Begin internal calibration
	12:01:16	721.27	897	SWICS on at level 1 modulated
	12:02:52	722.87	895	SWICS on at level 2 modulated
	12:04:28	724.47	893	SWICS on at level 3 modulated
	12:06:04	726.07	891	SWICS off
	12:09:16	729.27	897	SWICS on at level 1 modulated
	12:10:52	730.87	895	SWICS on at level 2 modulated
	12:12:28	732.47	893	SWICS on at level 3 modulated
	12:14:04	734.07	891	SWICS off
	12:33:16	753.27	897	SWICS on at level 1 modulated



Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
06/10/87	12:34:52	754.87	895	SWICS on at level 2 modulated
	12:36:28	756.47	893	SWICS on at level 3 modulated
	12:38:04	758.07	891	SWICS off
	End internal calibration sequence. Begin internal calibration sequence.			
07/08/87	12:00:44	720.73	8A1	Begin internal calibration
	12:01:16	721.27	897	SWICS on at level 1 modulated
	12:02:52	722.87	895	SWICS on at level 2 modulated
	12:04:28	724.47	893	SWICS on at level 3 modulated
	12:06:04	726.07	891	SWICS off
	12:09:16	729.27	897	SWICS on at level 1 modulated
	12:10:52	730.87	895	SWICS on at level 2 modulated
	12:12:28	732.47	893	SWICS on at level 3 modulated
	12:14:04	734.07	891	SWICS off
	12:33:16	753.27	897	SWICS on at level 1 modulated
	12:34:52	754.87	895	SWICS on at level 2 modulated
	12:36:28	756.47	893	SWICS on at level 3 modulated
	12:38:04	758.07	891	SWICS off
	End internal calibration sequence. Begin internal calibration sequence.			
07/22/87	12:00:44	720.73	8A1	Begin internal calibration
	12:01:16	721.27	897	SWICS on at level 1 modulated
	12:02:52	722.87	895	SWICS on at level 2 modulated
	12:04:28	724.47	893	SWICS on at level 3 modulated
	12:06:04	726.07	891	SWICS off
	12:09:16	729.27	897	SWICS on at level 1 modulated
	12:10:52	730.87	895	SWICS on at level 2 modulated
	12:12:28	732.47	893	SWICS on at level 3 modulated
	12:14:04	734.07	891	SWICS off
	12:33:16	753.27	897	SWICS on at level 1 modulated
	12:34:52	754.87	895	SWICS on at level 2 modulated
	12:36:28	756.47	893	SWICS on at level 3 modulated
	12:38:04	758.07	891	SWICS off
	End internal calibration sequence. Begin internal calibration sequence.			
08/05/87	12:00:44	720.73	8A1	Begin internal calibration
	12:01:16	721.27	897	SWICS on at level 1 modulated
	12:02:52	722.87	895	SWICS on at level 2 modulated
	12:04:28	724.47	893	SWICS on at level 3 modulated
	12:06:04	726.07	891	SWICS off
	12:09:16	729.27	897	SWICS on at level 1 modulated
	12:10:52	730.87	895	SWICS on at level 2 modulated
	12:12:28	732.47	893	SWICS on at level 3 modulated
	12:14:04	734.07	891	SWICS off
	12:33:16	753.27	897	SWICS on at level 1 modulated

Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/05/87	12:34:52	754.87	895	SWICS on at level 2 modulated
	12:36:28	756.47	893	SWICS on at level 3 modulated
	12:38:04	758.07	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
08/19/87	13:20:12	800.20	8A1	Begin internal calibration
	13:20:44	800.73	897	SWICS on at level 1 modulated
	13:22:20	802.33	895	SWICS on at level 2 modulated
	13:23:56	803.93	893	SWICS on at level 3 modulated
	13:25:32	805.53	891	SWICS off
	13:28:44	808.73	897	SWICS on at level 1 modulated
	13:30:20	810.33	895	SWICS on at level 2 modulated
	13:31:56	811.93	893	SWICS on at level 3 modulated
	13:33:32	813.53	891	SWICS off
	13:52:44	832.73	897	SWICS on at level 1 modulated
	13:54:20	834.33	895	SWICS on at level 2 modulated
	13:55:56	835.93	893	SWICS on at level 3 modulated
	13:57:32	837.53	891	SWICS off
	End internal calibration sequence. Begin azimuth angle load commands for 35° operation.			
08/28/87	16:06:04	966.07	419	Address azimuth position A
	16:08:44	968.73	2xx	Data command, high byte
	16:10:20	970.33	1xx	Data command, low byte
End azimuth angle load commands (A = 35.02°).				
08/31/87	12:37:32	757.53	814	Azimuth to position A
Begin internal calibration sequence.				
09/02/87	13:19:08	799.13	8A1	Begin internal calibration
	13:19:40	799.67	897	SWICS on at level 1 modulated
	13:21:16	801.27	895	SWICS on at level 2 modulated
	13:22:52	802.87	893	SWICS on at level 3 modulated
	13:24:28	804.47	891	SWICS off
	13:27:40	807.67	897	SWICS on at level 1 modulated
	13:29:16	809.27	895	SWICS on at level 2 modulated
	13:30:52	810.87	893	SWICS on at level 3 modulated
	13:32:28	812.47	891	SWICS off
	13:51:40	831.67	897	SWICS on at level 1 modulated
	13:53:16	833.27	895	SWICS on at level 2 modulated
	13:54:52	834.87	893	SWICS on at level 3 modulated
	13:56:28	836.47	891	SWICS off
	End internal calibration sequence. Begin internal calibration sequence.			
09/16/87	13:18:36	798.60	8A1	Begin internal calibration
	13:19:08	799.13	897	SWICS on at level 1 modulated
	13:20:44	800.73	895	SWICS on at level 2 modulated
	13:22:20	802.33	893	SWICS on at level 3 modulated

Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
09/16/87	13:23:56	803.93	891	SWICS off
	13:27:08	807.13	897	SWICS on at level 1 modulated
	13:28:44	808.73	895	SWICS on at level 2 modulated
	13:30:20	810.33	893	SWICS on at level 3 modulated
	13:31:56	811.93	891	SWICS off
	13:51:08	831.13	897	SWICS on at level 1 modulated
	13:52:44	832.73	895	SWICS on at level 2 modulated
	13:54:20	834.33	893	SWICS on at level 3 modulated
	13:55:56	835.93	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
09/30/87	13:18:04	798.07	8A1	Begin internal calibration
	13:18:36	798.60	897	SWICS on at level 1 modulated
	13:20:12	800.20	895	SWICS on at level 2 modulated
	13:21:48	801.80	893	SWICS on at level 3 modulated
	13:23:24	803.40	891	SWICS off
	13:26:36	806.60	897	SWICS on at level 1 modulated
	13:28:12	808.20	895	SWICS on at level 2 modulated
	13:29:48	809.80	893	SWICS on at level 3 modulated
	13:31:24	811.40	891	SWICS off
	13:50:36	830.60	897	SWICS on at level 1 modulated
	13:52:12	832.20	895	SWICS on at level 2 modulated
	13:53:48	833.80	893	SWICS on at level 3 modulated
	13:55:24	835.40	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/14/87	13:17:32	797.53	8A1	Begin internal calibration
	13:18:04	798.07	897	SWICS on at level 1 modulated
	13:19:40	799.67	895	SWICS on at level 2 modulated
	13:21:16	801.27	893	SWICS on at level 3 modulated
	13:22:52	802.87	891	SWICS off
	13:26:04	806.07	897	SWICS on at level 1 modulated
	13:27:40	807.67	895	SWICS on at level 2 modulated
	13:29:16	809.27	893	SWICS on at level 3 modulated
	13:30:52	810.87	891	SWICS off
	13:50:04	830.07	897	SWICS on at level 1 modulated
	13:51:40	831.67	895	SWICS on at level 2 modulated
	13:53:16	833.27	893	SWICS on at level 3 modulated
	13:54:52	834.87	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/28/87	13:15:56	795.93	8A1	Begin internal calibration
	13:16:28	796.47	897	SWICS on at level 1 modulated
	13:18:04	798.07	895	SWICS on at level 2 modulated
	13:19:40	799.67	893	SWICS on at level 3 modulated

Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/28/87	13:21:16	801.27	891	SWICS off
	13:24:28	804.47	897	SWICS on at level 1 modulated
	13:26:04	806.07	895	SWICS on at level 2 modulated
	13:27:40	807.67	893	SWICS on at level 3 modulated
	13:29:16	809.27	891	SWICS off
	13:48:28	828.47	897	SWICS on at level 1 modulated
	13:50:04	830.07	895	SWICS on at level 2 modulated
	13:51:40	831.67	893	SWICS on at level 3 modulated
	13:53:16	833.27	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
11/11/87	13:14:20	794.33	8A1	Begin internal calibration
	13:14:52	794.87	897	SWICS on at level 1 modulated
	13:16:28	796.47	895	SWICS on at level 2 modulated
	13:18:04	798.07	893	SWICS on at level 3 modulated
	13:19:40	799.67	891	SWICS off
	13:22:52	802.87	897	SWICS on at level 1 modulated
	13:24:28	804.47	895	SWICS on at level 2 modulated
	13:26:04	806.07	893	SWICS on at level 3 modulated
	13:27:40	807.67	891	SWICS off
	13:46:52	826.87	897	SWICS on at level 1 modulated
	13:48:28	828.47	895	SWICS on at level 2 modulated
	13:50:04	830.07	893	SWICS on at level 3 modulated
	13:51:40	831.67	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
11/25/87	13:12:13	792.22	8A1	Begin internal calibration
	13:12:45	792.75	897	SWICS on at level 1 modulated
	13:14:21	794.35	895	SWICS on at level 2 modulated
	13:15:57	795.95	893	SWICS on at level 3 modulated
	13:17:33	797.55	891	SWICS off
	13:20:45	800.75	897	SWICS on at level 1 modulated
	13:22:21	802.35	895	SWICS on at level 2 modulated
	13:23:57	803.95	893	SWICS on at level 3 modulated
	13:25:33	805.55	891	SWICS off
	13:44:45	824.75	897	SWICS on at level 1 modulated
	13:46:21	826.35	895	SWICS on at level 2 modulated
	13:47:57	827.95	893	SWICS on at level 3 modulated
	13:49:33	829.55	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
12/09/87	13:09:33	789.55	8A1	Begin internal calibration
	13:10:05	790.08	897	SWICS on at level 1 modulated
	13:11:41	791.68	895	SWICS on at level 2 modulated
	13:13:17	793.28	893	SWICS on at level 3 modulated

Table 12. Continued

(a) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/09/87	13:14:53	794.88	891	SWICS off
	13:18:05	798.08	897	SWICS on at level 1 modulated
	13:19:41	799.68	895	SWICS on at level 2 modulated
	13:21:17	801.28	893	SWICS on at level 3 modulated
	13:22:53	802.88	891	SWICS off
	13:42:05	822.08	897	SWICS on at level 1 modulated
	13:43:41	823.68	895	SWICS on at level 2 modulated
	13:45:17	825.28	893	SWICS on at level 3 modulated
	13:46:53	826.88	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
12/23/87	13:06:21	786.35	8A1	Begin internal calibration
	13:06:53	786.88	897	SWICS on at level 1 modulated
	13:08:29	788.48	895	SWICS on at level 2 modulated
	13:10:05	790.08	893	SWICS on at level 3 modulated
	13:11:41	791.68	891	SWICS off
	13:14:53	794.88	897	SWICS on at level 1 modulated
	13:16:29	796.48	895	SWICS on at level 2 modulated
	13:18:05	798.08	893	SWICS on at level 3 modulated
	13:19:41	799.68	891	SWICS off
	13:38:53	818.88	897	SWICS on at level 1 modulated
	13:40:29	820.48	895	SWICS on at level 2 modulated
	13:42:05	822.08	893	SWICS on at level 3 modulated
	13:43:41	823.68	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
01/06/88	13:02:04	782.07	8A1	Begin internal calibration
	13:02:36	782.60	897	SWICS on at level 1 modulated
	13:04:12	784.20	895	SWICS on at level 2 modulated
	13:05:48	785.80	893	SWICS on at level 3 modulated
	13:07:24	787.40	891	SWICS off
	13:10:36	790.60	897	SWICS on at level 1 modulated
	13:12:12	792.20	895	SWICS on at level 2 modulated
	13:13:48	793.80	893	SWICS on at level 3 modulated
	13:15:24	795.40	891	SWICS off
	13:34:36	814.60	897	SWICS on at level 1 modulated
	13:36:12	816.20	895	SWICS on at level 2 modulated
	13:37:48	817.80	893	SWICS on at level 3 modulated
	13:39:24	819.40	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
01/20/88	12:57:48	777.80	8A1	Begin internal calibration
	12:58:20	778.33	897	SWICS on at level 1 modulated
	12:59:56	779.93	895	SWICS on at level 2 modulated
	13:01:32	781.53	893	SWICS on at level 3 modulated

Table 12. Continued

(a) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/20/88	13:03:08	783.13	891	SWICS off
	13:06:20	786.33	897	SWICS on at level 1 modulated
	13:07:56	787.93	895	SWICS on at level 2 modulated
	13:09:32	789.53	893	SWICS on at level 3 modulated
	13:11:08	791.13	891	SWICS off
	13:30:20	810.33	897	SWICS on at level 1 modulated
	13:31:56	811.93	895	SWICS on at level 2 modulated
	13:33:32	813.53	893	SWICS on at level 3 modulated
	13:35:08	815.13	891	SWICS off
End internal calibration sequence.				

Table 12. Continued

(b) February 1988 through January 1989

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/03/88	12:51:56	771.93	8A1	Begin internal calibration
	12:52:28	772.47	897	SWICS on at level 1 modulated
	12:54:94	774.07	895	SWICS on at level 2 modulated
	12:55:40	775.67	893	SWICS on at level 3 modulated
	12:57:16	777.27	891	SWICS off
	13:00:00	780.47	897	SWICS on at level 1 modulated
	13:02:04	782.07	895	SWICS on at level 2 modulated
	13:03:40	783.67	893	SWICS on at level 3 modulated
	13:05:16	785.27	891	SWICS off
	13:24:28	804.47	897	SWICS on at level 1 modulated
	13:26:04	806.07	895	SWICS on at level 2 modulated
	13:27:40	807.67	893	SWICS on at level 3 modulated
	13:29:16	809.27	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
02/17/88	12:44:28	764.47	8A1	Begin internal calibration
	12:45:00	765.00	897	SWICS on at level 1 modulated
	12:46:36	766.60	895	SWICS on at level 2 modulated
	12:48:12	768.20	893	SWICS on at level 3 modulated
	12:49:48	769.80	891	SWICS off
	12:53:00	773.00	897	SWICS on at level 1 modulated
	12:54:36	774.60	895	SWICS on at level 2 modulated
	12:56:12	776.20	893	SWICS on at level 3 modulated
	12:57:48	777.80	891	SWICS off
	13:17:00	797.00	897	SWICS on at level 1 modulated
	13:18:36	798.60	895	SWICS on at level 2 modulated
	13:20:12	800.20	893	SWICS on at level 3 modulated
	13:21:48	801.80	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/02/88	12:35:56	755.93	8A1	Begin internal calibration
	12:36:28	756.47	897	SWICS on at level 1 modulated
	12:38:04	758.07	895	SWICS on at level 2 modulated
	12:39:40	759.67	893	SWICS on at level 3 modulated
	12:41:16	761.27	891	SWICS off
	12:44:28	764.47	897	SWICS on at level 1 modulated
	12:46:04	766.07	895	SWICS on at level 2 modulated
	12:47:40	767.67	893	SWICS on at level 3 modulated
	12:49:16	769.27	891	SWICS off
	13:08:28	788.47	897	SWICS on at level 1 modulated
	13:10:04	790.07	895	SWICS on at level 2 modulated
	13:11:40	791.67	893	SWICS on at level 3 modulated
	13:13:16	793.27	891	SWICS off
End internal calibration sequence.				

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
03/16/88	12:26:20	746.33	8A1	Begin internal calibration
	12:26:52	746.87	897	SWICS on at level 1 modulated
	12:28:28	748.47	895	SWICS on at level 2 modulated
	12:30:04	750.07	893	SWICS on at level 3 modulated
	12:31:40	751.67	891	SWICS off
	12:34:52	754.87	897	SWICS on at level 1 modulated
	12:36:28	756.47	895	SWICS on at level 2 modulated
	12:38:04	758.07	893	SWICS on at level 3 modulated
	12:39:40	759.67	891	SWICS off
	12:58:52	778.87	897	SWICS on at level 1 modulated
	13:00:28	780.47	895	SWICS on at level 2 modulated
	13:02:04	782.07	893	SWICS on at level 3 modulated
	13:03:40	783.67	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/30/88	12:17:48	737.80	8A1	Begin internal calibration
	12:18:20	738.33	897	SWICS on at level 1 modulated
	12:19:56	739.93	895	SWICS on at level 2 modulated
	12:21:32	741.53	893	SWICS on at level 3 modulated
	12:23:08	743.13	891	SWICS off
	12:26:20	746.33	897	SWICS on at level 1 modulated
	12:27:56	747.93	895	SWICS on at level 2 modulated
	12:29:32	749.53	893	SWICS on at level 3 modulated
	12:31:08	751.13	891	SWICS off
	12:50:20	770.33	897	SWICS on at level 1 modulated
	12:51:56	771.93	895	SWICS on at level 2 modulated
	12:53:32	773.53	893	SWICS on at level 3 modulated
	12:55:08	775.13	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/13/88	12:09:48	729.80	8A1	Begin internal calibration
	12:10:20	730.33	897	SWICS on at level 1 modulated
	12:11:56	731.93	895	SWICS on at level 2 modulated
	12:13:32	733.53	893	SWICS on at level 3 modulated
	12:15:08	735.13	891	SWICS off
	12:18:20	738.33	897	SWICS on at level 1 modulated
	12:19:56	739.93	895	SWICS on at level 2 modulated
	12:21:32	741.53	893	SWICS on at level 3 modulated
	12:23:08	743.13	891	SWICS off
	12:42:20	762.33	897	SWICS on at level 1 modulated
	12:43:56	763.93	895	SWICS on at level 2 modulated
	12:45:32	765.53	893	SWICS on at level 3 modulated
	12:47:08	767.13	891	SWICS off
End internal calibration sequence.				



Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/19/88	13:30:52	810.87	811	Azimuth to 0°
Begin internal calibration sequence.				
04/27/88	10:00:44	600.73	8A1	Begin internal calibration
	10:01:16	601.27	897	SWICS on at level 1 modulated
	10:02:52	602.87	895	SWICS on at level 2 modulated
	10:04:28	604.47	893	SWICS on at level 3 modulated
	10:06:04	606.07	891	SWICS off
	10:09:16	609.27	897	SWICS on at level 1 modulated
	10:10:52	610.87	895	SWICS on at level 2 modulated
	10:12:28	612.47	893	SWICS on at level 3 modulated
	10:14:04	614.07	891	SWICS off
	10:33:16	633.27	897	SWICS on at level 1 modulated
	10:34:52	634.87	895	SWICS on at level 2 modulated
	10:36:28	636.47	893	SWICS on at level 3 modulated
	10:38:04	638.07	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/11/88	11:35:08	695.13	8A1	Begin internal calibration
	11:35:40	695.67	897	SWICS on at level 1 modulated
	11:37:16	697.27	895	SWICS on at level 2 modulated
	11:38:52	698.87	893	SWICS on at level 3 modulated
	11:40:28	700.47	891	SWICS off
	11:43:40	703.67	897	SWICS on at level 1 modulated
	11:45:16	705.27	895	SWICS on at level 2 modulated
	11:46:52	706.87	893	SWICS on at level 3 modulated
	11:48:28	708.47	891	SWICS off
	12:07:40	727.67	897	SWICS on at level 1 modulated
	12:09:16	729.27	895	SWICS on at level 2 modulated
	12:10:52	730.87	893	SWICS on at level 3 modulated
	12:12:28	732.47	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/25/88	09:47:56	587.93	8A1	Begin internal calibration
	09:48:28	588.47	897	SWICS on at level 1 modulated
	09:50:04	590.07	895	SWICS on at level 2 modulated
	09:51:40	591.67	893	SWICS on at level 3 modulated
	09:53:16	593.27	891	SWICS off
	09:56:28	596.47	897	SWICS on at level 1 modulated
	09:58:04	598.07	895	SWICS on at level 2 modulated
	09:59:40	599.67	893	SWICS on at level 3 modulated
	10:01:16	601.27	891	SWICS off
	10:20:28	620.47	897	SWICS on at level 1 modulated
	10:22:04	622.07	895	SWICS on at level 2 modulated

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
05/25/88	10:23:40	623.67	893	SWICS on at level 3 modulated
	10:25:16	625.27	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
06/08/88	09:42:04	582.07	8A1	Begin internal calibration
	09:42:36	582.60	897	SWICS on at level 1 modulated
	09:44:12	584.20	895	SWICS on at level 2 modulated
	09:45:48	585.80	893	SWICS on at level 3 modulated
	09:47:24	587.40	891	SWICS off
	09:50:36	590.60	897	SWICS on at level 1 modulated
	09:52:12	592.20	895	SWICS on at level 2 modulated
	09:53:48	593.80	893	SWICS on at level 3 modulated
	09:55:24	595.40	891	SWICS off
	10:14:36	614.60	897	SWICS on at level 1 modulated
	10:16:12	616.20	895	SWICS on at level 2 modulated
	10:17:48	617.80	893	SWICS on at level 3 modulated
	10:19:24	619.40	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
06/22/88	12:59:24	779.40	8A1	Begin internal calibration
	12:59:56	779.93	897	SWICS on at level 1 modulated
	13:01:32	781.53	895	SWICS on at level 2 modulated
	13:03:08	783.13	893	SWICS on at level 3 modulated
	13:04:44	784.73	891	SWICS off
	13:07:56	787.93	897	SWICS on at level 1 modulated
	13:09:32	789.53	895	SWICS on at level 2 modulated
	13:11:08	791.13	893	SWICS on at level 3 modulated
	13:12:44	792.73	891	SWICS off
	13:31:56	811.93	897	SWICS on at level 1 modulated
	13:33:32	813.53	895	SWICS on at level 2 modulated
	13:35:08	815.13	893	SWICS on at level 3 modulated
	13:36:44	816.73	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
07/06/88	09:31:57	571.95	8A1	Begin internal calibration
	09:32:29	572.48	897	SWICS on at level 1 modulated
	09:34:05	574.08	895	SWICS on at level 2 modulated
	09:35:41	575.68	893	SWICS on at level 3 modulated
	09:37:17	577.28	891	SWICS off
	09:40:29	580.48	897	SWICS on at level 1 modulated
	09:42:05	582.08	895	SWICS on at level 2 modulated
	09:43:41	583.68	893	SWICS on at level 3 modulated
	09:45:17	585.28	891	SWICS off

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
07/06/88	10:04:29	604.48	897	SWICS on at level 1 modulated
	10:06:05	606.08	895	SWICS on at level 2 modulated
	10:07:41	607.68	893	SWICS on at level 3 modulated
	10:09:17	609.28	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
07/20/88	09:27:09	567.15	8A1	Begin internal calibration
	09:27:41	567.68	897	SWICS on at level 1 modulated
	09:29:17	569.28	895	SWICS on at level 2 modulated
	09:30:53	570.88	893	SWICS on at level 3 modulated
	09:32:29	572.48	891	SWICS off
	09:35:41	575.68	897	SWICS on at level 1 modulated
	09:37:17	577.28	895	SWICS on at level 2 modulated
	09:38:53	578.88	893	SWICS on at level 3 modulated
	09:40:29	580.48	891	SWICS off
	09:59:41	599.68	897	SWICS on at level 1 modulated
	10:01:17	601.28	895	SWICS on at level 2 modulated
	10:02:53	602.88	893	SWICS on at level 3 modulated
	10:04:29	604.48	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
08/03/88	09:23:25	563.42	8A1	Begin internal calibration
	09:23:57	563.95	897	SWICS on at level 1 modulated
	09:25:33	565.55	895	SWICS on at level 2 modulated
	09:27:09	567.15	893	SWICS on at level 3 modulated
	09:28:45	568.75	891	SWICS off
	09:31:57	571.95	897	SWICS on at level 1 modulated
	09:33:33	573.55	895	SWICS on at level 2 modulated
	09:35:09	575.15	893	SWICS on at level 3 modulated
	09:36:45	576.75	891	SWICS off
	09:55:57	595.95	897	SWICS on at level 1 modulated
	09:57:33	597.55	895	SWICS on at level 2 modulated
	09:59:09	599.15	893	SWICS on at level 3 modulated
	10:00:45	600.75	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
08/17/88	09:20:13	560.22	8A1	Begin internal calibration
	09:20:45	560.75	897	SWICS on at level 1 modulated
	09:22:21	562.35	895	SWICS on at level 2 modulated
	09:23:57	563.95	893	SWICS on at level 3 modulated
	09:25:33	565.55	891	SWICS off
	09:28:45	568.75	897	SWICS on at level 1 modulated
	09:30:21	570.35	895	SWICS on at level 2 modulated
	09:31:57	571.95	893	SWICS on at level 3 modulated
	09:33:33	573.55	891	SWICS off

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
08/17/88	09:52:45	592.75	897	SWICS on at level 1 modulated
	09:54:21	594.35	895	SWICS on at level 2 modulated
	09:55:57	595.95	893	SWICS on at level 3 modulated
	09:57:33	597.55	891	SWICS off
End internal calibration sequence.				
Begin azimuth angle load commands for 35° operation.				
08/29/88	12:01:17	721.28	419	Address azimuth position A
	12:01:49	721.82	2xx	Data command, high byte
	12:02:21	722.35	1xx	Data command, low byte
End azimuth angle load commands ( $A = 34.95^\circ$ ).				
08/29/88	20:42:21	1242.35	814	Azimuth to position A
Begin internal calibration sequence.				
08/31/88	09:18:05	558.08	8A1	Begin internal calibration
	09:18:37	558.62	897	SWICS on at level 1 modulated
	09:20:13	560.22	895	SWICS on at level 2 modulated
	09:21:49	561.82	893	SWICS on at level 3 modulated
	09:23:25	563.42	891	SWICS off
	09:26:37	566.62	897	SWICS on at level 1 modulated
	09:28:13	568.22	895	SWICS on at level 2 modulated
	09:29:49	569.82	893	SWICS on at level 3 modulated
	09:31:25	571.42	891	SWICS off
	09:50:37	590.62	897	SWICS on at level 1 modulated
	09:52:13	592.22	895	SWICS on at level 2 modulated
	09:53:49	593.82	893	SWICS on at level 3 modulated
	09:55:25	595.42	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
09/14/88	09:15:57	555.95	8A1	Begin internal calibration
	09:16:29	556.48	897	SWICS on at level 1 modulated
	09:18:05	558.08	895	SWICS on at level 2 modulated
	09:19:41	559.68	893	SWICS on at level 3 modulated
	09:21:17	561.28	891	SWICS off
	09:24:29	564.48	897	SWICS on at level 1 modulated
	09:26:05	566.08	895	SWICS on at level 2 modulated
	09:27:41	567.68	893	SWICS on at level 3 modulated
	09:29:17	569.28	891	SWICS off
	09:48:29	588.48	897	SWICS on at level 1 modulated
	09:50:05	590.08	895	SWICS on at level 2 modulated
	09:51:41	591.68	893	SWICS on at level 3 modulated
	09:53:17	593.28	891	SWICS off
End internal calibration sequence.				

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
09/28/88	09:13:49	553.82	8A1	Begin internal calibration
	09:14:21	554.35	897	SWICS on at level 1 modulated
	09:15:57	555.95	895	SWICS on at level 2 modulated
	09:17:33	557.55	893	SWICS on at level 3 modulated
	09:19:09	559.15	891	SWICS off
	09:22:21	562.35	897	SWICS on at level 1 modulated
	09:23:57	563.95	895	SWICS on at level 2 modulated
	09:25:33	565.55	893	SWICS on at level 3 modulated
	09:27:09	567.15	891	SWICS off
	09:46:21	586.35	897	SWICS on at level 1 modulated
	09:47:57	587.95	895	SWICS on at level 2 modulated
	09:49:33	589.55	893	SWICS on at level 3 modulated
	09:51:09	591.15	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/12/88	09:11:09	551.15	8A1	Begin internal calibration
	09:11:41	551.68	897	SWICS on at level 1 modulated
	09:13:17	553.28	895	SWICS on at level 2 modulated
	09:14:53	554.88	893	SWICS on at level 3 modulated
	09:16:29	556.48	891	SWICS off
	09:19:41	559.68	897	SWICS on at level 1 modulated
	09:21:17	561.28	895	SWICS on at level 2 modulated
	09:22:53	562.88	893	SWICS on at level 3 modulated
	09:24:29	564.48	891	SWICS off
	09:43:41	583.68	897	SWICS on at level 1 modulated
	09:45:17	585.28	895	SWICS on at level 2 modulated
	09:46:53	586.88	893	SWICS on at level 3 modulated
	09:48:29	588.48	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
10/26/88	09:07:57	547.95	8A1	Begin internal calibration
	09:08:29	548.48	897	SWICS on at level 1 modulated
	09:10:05	550.08	895	SWICS on at level 2 modulated
	09:11:41	551.68	893	SWICS on at level 3 modulated
	09:13:17	553.28	891	SWICS off
	09:16:29	556.48	897	SWICS on at level 1 modulated
	09:18:05	558.08	895	SWICS on at level 2 modulated
	09:19:41	559.68	893	SWICS on at level 3 modulated
	09:21:17	561.28	891	SWICS off
	09:40:29	580.48	897	SWICS on at level 1 modulated
	09:42:05	582.08	895	SWICS on at level 2 modulated
	09:43:41	583.68	893	SWICS on at level 3 modulated

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
10/26/88	09:45:17	585.28	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
11/09/88	09:04:13	544.22	8A1	Begin internal calibration
	09:04:45	544.75	897	SWICS on at level 1 modulated
	09:06:21	546.35	895	SWICS on at level 2 modulated
	09:07:57	547.95	893	SWICS on at level 3 modulated
	09:09:33	549.55	891	SWICS off
	09:12:45	552.75	897	SWICS on at level 1 modulated
	09:14:21	554.35	895	SWICS on at level 2 modulated
	09:15:57	555.95	893	SWICS on at level 3 modulated
	09:17:33	557.55	891	SWICS off
	09:36:45	576.75	897	SWICS on at level 1 modulated
	09:38:21	578.35	895	SWICS on at level 2 modulated
	09:39:57	579.95	893	SWICS on at level 3 modulated
	09:41:33	581.55	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
11/23/88	08:59:57	539.95	8A1	Begin internal calibration
	09:00:29	540.48	897	SWICS on at level 1 modulated
	09:02:05	542.08	895	SWICS on at level 2 modulated
	09:03:41	543.68	893	SWICS on at level 3 modulated
	09:05:17	545.28	891	SWICS off
	09:08:29	548.48	897	SWICS on at level 1 modulated
	09:10:05	550.08	895	SWICS on at level 2 modulated
	09:11:41	551.68	893	SWICS on at level 3 modulated
	09:13:17	553.28	891	SWICS off
	09:32:29	572.48	897	SWICS on at level 1 modulated
	09:34:05	574.08	895	SWICS on at level 2 modulated
	09:35:41	575.68	893	SWICS on at level 3 modulated
	09:37:17	577.28	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
12/07/88	08:55:09	535.15	8A1	Begin internal calibration
	08:55:41	535.68	897	SWICS on at level 1 modulated
	08:57:17	537.28	895	SWICS on at level 2 modulated
	08:58:53	538.88	893	SWICS on at level 3 modulated
	09:00:29	540.48	891	SWICS off
	09:03:41	543.68	897	SWICS on at level 1 modulated
	09:05:17	545.28	895	SWICS on at level 2 modulated
	09:06:53	546.88	893	SWICS on at level 3 modulated
	09:08:29	548.48	891	SWICS off
	09:27:41	567.68	897	SWICS on at level 1 modulated
	09:29:17	569.28	895	SWICS on at level 2 modulated

Table 12. Continued

(b) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
12/07/88	09:30:53	570.88	893	SWICS on at level 3 modulated
	09:32:29	572.48	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
12/21/88	08:49:17	529.28	8A1	Begin internal calibration
	08:49:49	529.82	897	SWICS on at level 1 modulated
	08:51:25	531.42	895	SWICS on at level 2 modulated
	08:53:01	533.02	893	SWICS on at level 3 modulated
	08:54:37	534.62	891	SWICS off
	08:57:49	537.82	897	SWICS on at level 1 modulated
	08:59:25	539.42	895	SWICS on at level 2 modulated
	09:01:01	541.02	893	SWICS on at level 3 modulated
	09:02:37	542.62	891	SWICS off
	09:21:49	561.82	897	SWICS on at level 1 modulated
	09:23:25	563.42	895	SWICS on at level 2 modulated
	09:25:01	565.02	893	SWICS on at level 3 modulated
	09:26:37	566.62	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
01/04/89	08:42:54	522.90	8A1	Begin internal calibration
	08:43:26	523.43	897	SWICS on at level 1 modulated
	08:45:02	525.03	895	SWICS on at level 2 modulated
	08:46:38	526.63	893	SWICS on at level 3 modulated
	08:48:14	528.23	891	SWICS off
	08:51:26	531.43	897	SWICS on at level 1 modulated
	08:53:02	533.03	895	SWICS on at level 2 modulated
	08:54:38	534.63	893	SWICS on at level 3 modulated
	08:56:14	536.23	891	SWICS off
	09:15:26	555.43	897	SWICS on at level 1 modulated
	09:17:02	557.03	895	SWICS on at level 2 modulated
	09:18:38	558.63	893	SWICS on at level 3 modulated
	09:20:14	560.23	891	SWICS off
End internal calibration sequence. Begin internal calibration sequence.				
01/25/89	09:21:50	561.83	8A1	Begin internal calibration
	09:22:22	562.37	897	SWICS on at level 1 modulated
	09:23:58	563.97	895	SWICS on at level 2 modulated
	09:25:34	565.57	893	SWICS on at level 3 modulated
	09:27:10	567.17	891	SWICS off
	09:30:22	570.37	897	SWICS on at level 1 modulated
	09:31:58	571.97	895	SWICS on at level 2 modulated

Table 12. Continued

(b) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
01/25/89	09:33:34	573.57	893	SWICS on at level 3 modulated
	09:35:10	575.17	891	SWICS off
	09:54:22	594.37	897	SWICS on at level 1 modulated
	09:55:58	595.97	895	SWICS on at level 2 modulated
	09:57:34	597.57	893	SWICS on at level 3 modulated
	09:59:10	599.17	891	SWICS off
End internal calibration sequence.				



Table 12. Continued

(c) February 1989 through May 1989

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
02/01/89	08:26:22	506.37	8A1	Begin internal calibration
	08:26:54	506.90	897	SWICS on at level 1 modulated
	08:28:30	508.50	895	SWICS on at level 2 modulated
	08:30:06	510.10	893	SWICS on at level 3 modulated
	08:31:42	511.70	891	SWICS off
	08:34:54	514.90	897	SWICS on at level 1 modulated
	08:36:30	516.50	895	SWICS on at level 2 modulated
	08:38:06	518.10	893	SWICS on at level 3 modulated
	08:39:42	519.70	891	SWICS off
	08:58:54	538.90	897	SWICS on at level 1 modulated
	09:00:30	540.50	895	SWICS on at level 2 modulated
	09:02:06	542.10	893	SWICS on at level 3 modulated
	09:03:42	543.70	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
02/15/89	09:57:02	597.03	8A1	Begin internal calibration
	09:57:34	597.57	897	SWICS on at level 1 modulated
	09:59:10	599.17	895	SWICS on at level 2 modulated
	10:00:46	600.77	893	SWICS on at level 3 modulated
	10:02:22	602.37	891	SWICS off
	10:05:34	605.57	897	SWICS on at level 1 modulated
	10:07:10	607.17	895	SWICS on at level 2 modulated
	10:08:46	608.77	893	SWICS on at level 3 modulated
	10:10:22	610.37	891	SWICS off
	10:29:34	629.57	897	SWICS on at level 1 modulated
	10:31:10	631.17	895	SWICS on at level 2 modulated
	10:32:46	632.77	893	SWICS on at level 3 modulated
	10:34:22	634.37	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/01/89	09:44:13	584.22	8A1	Begin internal calibration
	09:44:45	584.75	897	SWICS on at level 1 modulated
	09:46:21	586.35	895	SWICS on at level 2 modulated
	09:47:57	587.95	893	SWICS on at level 3 modulated
	09:49:33	589.55	891	SWICS off
	09:52:45	592.75	897	SWICS on at level 1 modulated
	09:54:21	594.35	895	SWICS on at level 2 modulated
	09:55:57	595.95	893	SWICS on at level 3 modulated
	09:57:33	597.55	891	SWICS off
	10:16:45	616.75	897	SWICS on at level 1 modulated
	10:18:21	618.35	895	SWICS on at level 2 modulated
	10:19:57	619.95	893	SWICS on at level 3 modulated
	10:21:33	621.55	891	SWICS off
End internal calibration sequence.				

Table 12. Continued

(c) Continued

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
Begin internal calibration sequence.				
03/15/89	09:30:22	570.37	8A1	Begin internal calibration
	09:30:54	570.90	897	SWICS on at level 1 modulated
	09:32:30	572.50	895	SWICS on at level 2 modulated
	09:34:06	574.10	893	SWICS on at level 3 modulated
	09:35:42	575.70	891	SWICS off
	09:38:54	578.90	897	SWICS on at level 1 modulated
	09:40:30	580.50	895	SWICS on at level 2 modulated
	09:42:06	582.10	893	SWICS on at level 3 modulated
	09:43:42	583.70	891	SWICS off
	10:02:54	602.90	897	SWICS on at level 1 modulated
	10:04:30	604.50	895	SWICS on at level 2 modulated
	10:06:06	606.10	893	SWICS on at level 3 modulated
	10:07:42	607.70	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
03/29/89	09:17:02	557.03	8A1	Begin internal calibration
	09:17:34	557.57	897	SWICS on at level 1 modulated
	09:19:10	559.17	895	SWICS on at level 2 modulated
	09:20:46	560.77	893	SWICS on at level 3 modulated
	09:22:22	562.37	891	SWICS off
	09:25:34	565.57	897	SWICS on at level 1 modulated
	09:27:10	567.17	895	SWICS on at level 2 modulated
	09:28:46	568.77	893	SWICS on at level 3 modulated
	09:30:22	570.37	891	SWICS off
	09:49:34	589.57	897	SWICS on at level 1 modulated
	09:51:10	591.17	895	SWICS on at level 2 modulated
	09:52:46	592.77	893	SWICS on at level 3 modulated
	09:54:22	594.37	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
04/12/89	09:03:43	543.72	8A1	Begin internal calibration
	09:04:15	544.25	897	SWICS on at level 1 modulated
	09:05:51	545.85	895	SWICS on at level 2 modulated
	09:07:27	547.45	893	SWICS on at level 3 modulated
	09:09:03	549.05	891	SWICS off
	09:12:15	552.25	897	SWICS on at level 1 modulated
	09:13:51	553.85	895	SWICS on at level 2 modulated
	09:15:27	555.45	893	SWICS on at level 3 modulated
	09:17:03	557.05	891	SWICS off
	09:36:15	576.25	897	SWICS on at level 1 modulated
	09:37:51	577.85	895	SWICS on at level 2 modulated
	09:39:27	579.45	893	SWICS on at level 3 modulated
	09:41:03	581.05	891	SWICS off
End internal calibration sequence.				

Table 12. Concluded

(c) Concluded

Date	Universal time		Hex command	Event description
	hr:min:sec	Minutes of day		
04/16/89	13:15:26	795.43	811	Azimuth to 0°
Begin internal calibration sequence.				
04/26/89	08:50:22	530.37	8A1	Begin internal calibration
	08:50:54	530.90	897	SWICS on at level 1 modulated
	08:52:30	532.50	895	SWICS on at level 2 modulated
	08:54:06	534.10	893	SWICS on at level 3 modulated
	08:55:42	535.70	891	SWICS off
	08:58:54	538.90	897	SWICS on at level 1 modulated
	09:00:30	540.50	895	SWICS on at level 2 modulated
	09:02:06	542.10	893	SWICS on at level 3 modulated
	09:03:42	543.70	891	SWICS off
	09:22:54	562.90	897	SWICS on at level 1 modulated
	09:24:30	564.50	895	SWICS on at level 2 modulated
	09:26:06	566.10	893	SWICS on at level 3 modulated
	09:27:42	567.70	891	SWICS off
End internal calibration sequence.				
Begin internal calibration sequence.				
05/10/89	08:38:38	518.63	8A1	Begin internal calibration
	08:39:10	519.17	897	SWICS on at level 1 modulated
	08:40:46	520.77	895	SWICS on at level 2 modulated
	08:42:22	522.37	893	SWICS on at level 3 modulated
	08:43:58	523.97	891	SWICS off
	08:47:10	527.17	897	SWICS on at level 1 modulated
	08:48:46	528.77	895	SWICS on at level 2 modulated
	08:50:22	530.37	893	SWICS on at level 3 modulated
	08:51:58	531.97	891	SWICS off
	09:11:10	551.17	897	SWICS on at level 1 modulated
	09:12:46	552.77	895	SWICS on at level 2 modulated
	09:14:22	554.37	893	SWICS on at level 3 modulated
	09:15:58	555.97	891	SWICS off
End internal calibration sequence.				
05/24/89	01:04:14	64.23	822	Normal scan mode
Begin azimuth angle load commands for test.				
05/31/89	17:19:43	1039.72	419	Address azimuth position A
	17:22:23	1042.38	2xx	Data command, high byte
	17:23:27	1043.45	1xx	Data command, low byte
End azimuth angle load commands.				

Table 13. Modified Calibration Sequence on ERBS and NOAA 10 Spacecraft

(a) ERBS (*X*-axis forward)

Step	Elapsed UT	Hex command	Event description
	hr:min:sec		
1	00:00:00	882	Detector bias heater on at level 1
2	00:02:42	881	Detector bias heater off
3	00:03:12	883	Detector bias heater on at level 2
4	00:05:54	881	Detector bias heater off
5	00:06:24	884	Detector bias heater on at level 3
6	00:09:06	881	Detector bias heater off
7	01:08:18	821	Elevate to internal source (stow)
8	01:24:18	862	WFOV BB heater on at temp. 1
9	01:40:18	872	MFOV BB heater on at temp. 1
10	02:45:18	823	Elevate to nadir (Earth)
11	02:46:54	881	Detector bias heater off
12	02:47:30	852	Solar port heaters off
13	02:48:00	821	Elevate to internal source (stow)
14	02:48:30	851	Solar port heaters on
15	02:50:46	882	Detector bias heater on at level 1
16	02:54:24	892	SWICS on at level 3
17	02:57:36	881	Detector bias heater off
18	03:01:18	862	WFOV BB heater on at temp. 1
19	03:01:54	872	MFOV BB heater on at temp. 1
20	03:02:54	891	SWICS off
21	03:16:18	883	Detector bias heater on at level 2
22	03:20:00	893	SWICS on at level 2
23	03:23:12	881	Detector bias heater off
24	03:26:54	863	WFOV BB heater on at temp. 2
25	03:27:30	873	MFOV BB heater on at temp. 2
26	03:28:30	891	SWICS off
27	03:41:54	884	Detector bias heater on at level 3
28	03:45:36	894	SWICS on at level 1
29	03:47:42	881	Detector bias heater off
30	03:50:24	852	Solar port heaters off
31	03:51:30	861	WFOV BB heater off
32	03:52:00	871	MFOV BB heater off
33	03:52:30	851	Solar port heaters off
34	03:53:06	891	SWICS off
35	04:00:00	823	Elevate to nadir (Earth)
36	04:07:30	822	Elevate to solar ports
37	04:08:00	814	Azimuth to position A
38	04:08:30	883	Detector bias heater on at level 2
39	04:18:42	831	SMA shutter cycle on (Sun centered in FOV)
40	04:59:42	832	SMA shutter cycle off
41	05:00:18	881	Detector bias heater off
42	05:00:48	882	Detector bias heater on at level 1
43	05:03:30	881	Detector bias heater off
44	05:04:00	883	Detector bias heater on at level 2

Table 13. Continued

(a) Concluded

Step	Elapsed UT	Hex command	Event description
	hr:min:sec		
45	05:06:42	881	Detector bias heater off
46	05:07:12	884	Detector bias heater on at level 3
47	05:09:54	881	Detector bias heater off
48	05:10:24	852	Solar port heaters off
49	05:26:24	851	Solar port heaters on
50	05:26:54	821	Elevate to internal source (stow)
51	05:42:54	811	Azimuth to 0°
52	06:08:30	823	Elevate to nadir (Earth)
53	06:27:12	882	Detector bias heater on at level 1
54	06:29:54	881	Detector bias heater off
55	06:30:24	883	Detector bias heater on at level 2
56	06:33:06	881	Detector bias heater off
57	06:33:36	884	Detector bias heater on at level 3
58	06:36:18	881	Detector bias heater off

Table 13. Continued

(b) ERBS (*X*-axis backward)

Step	Elapsed UT	Hex command	Event description
	hr:min:sec		
1	00:00:00	882	Detector bias heater on at level 1
2	00:02:42	881	Detector bias heater off
3	00:03:12	883	Detector bias heater on at level 2
4	00:05:54	881	Detector bias heater off
5	00:06:24	884	Detector bias heater on at level 3
6	00:09:06	881	Detector bias heater off
7	01:38:54	821	Elevate to internal source (stow)
8	01:54:54	862	WFOV BB heater on at temp. 1
9	02:10:54	872	MFOV BB heater on at temp. 1
10	03:16:00	823	Elevate to nadir (Earth)
11	03:17:36	881	Detector bias heater off
12	03:18:06	852	Solar port heaters off
13	03:18:42	821	Elevate to internal source (stow)
14	03:19:12	851	Solar port heaters on
15	03:21:18	882	Detector bias heater on at level 1
16	03:25:06	892	SWICS on at level 3
17	03:28:18	881	Detector bias heater off
18	03:32:00	862	WFOV BB heater on at temp. 1
19	03:32:30	872	MFOV BB heater on at temp. 1
20	03:33:36	891	SWICS off
21	03:46:54	883	Detector bias heater on at level 2
22	03:50:42	893	SWICS on at level 2
23	03:53:54	881	Detector bias heater off
24	03:57:36	863	WFOV BB heater on at temp. 2
25	03:58:06	873	MFOV BB heater on at temp. 2
26	03:59:12	891	SWICS off
27	04:12:30	884	Detector bias heater on at level 3
28	04:16:18	894	SWICS on at level 1
29	04:18:24	881	Detector bias heater off
30	04:21:06	852	Solar port heaters off
31	04:22:06	861	WFOV BB heater off
32	04:22:42	871	MFOV BB heater off
33	04:23:12	851	Solar port heaters off
34	04:23:42	891	SWICS off
35	04:30:42	823	Elevate to nadir (Earth)
36	04:38:06	822	Elevate to solar ports
37	04:38:42	814	Azimuth to position A
38	04:39:12	883	Detector bias heater on at level 2
39	04:49:18	831	SMA shutter cycle on (Sun centered in FOV)
40	05:10:42		
41	05:30:24	832	SMA shutter cycle off
42	05:30:54	881	Detector bias heater off
43	05:31:30	882	Detector bias heater on at level 1
44	05:34:06	881	Detector bias heater off
	05:34:42	883	Detector bias heater on at level 2

Table 13. Continued

(b) Concluded

Step	Elapsed UT	Hex command	Event description
	hr:min:sec		
45	05:37:18	881	Detector bias heater off
46	05:37:54	884	Detector bias heater on at level 3
47	05:40:30	881	Detector bias heater off
48	05:41:06	852	Solar port heaters off
49	05:57:06	851	Solar port heaters on
50	05:57:36	821	Elevate to internal source (stow)
51	06:13:36	811	Azimuth to 0°
52	06:39:12	823	Elevate to nadir (Earth)
53	08:03:30	882	Detector bias heater on at level 1
54	08:06:06	881	Detector bias heater off
55	08:06:42	883	Detector bias heater on at level 2
56	08:09:18	881	Detector bias heater off
57	08:09:54	884	Detector bias heater on at level 3
58	08:12:30	881	Detector bias heater off

Table 13. Continued

(c) NOAA 10

Step	Elapsed UT	Hex command	Event description
	hr:min:sec		
1	00:00:00	882	Detector bias heater on at level 1
2	00:02:42	881	Detector bias heater off
3	00:03:12	883	Detector bias heater on at level 2
4	00:05:54	881	Detector bias heater off
5	00:06:24	884	Detector bias heater on at level 3
6	00:09:06	881	Detector bias heater off
7	00:40:30	821	Elevate to internal source (stow)
8	00:56:30	862	WFOV BB heater on at temp. 1
9	01:12:30	872	MFOV BB heater on at temp. 1
10	02:23:30	823	Elevate to nadir (Earth)
11	02:24:30	881	Detector bias heater off
12	02:25:06	852	Solar port heaters off
13	02:25:36	821	Elevate to internal source (stow)
14	02:26:06	851	Solar port heaters on
15	02:28:18	882	Detector bias heater on at level 1
16	02:32:00	892	SWICS on at level 3
17	02:35:12	881	Detector bias heater off
18	02:38:54	862	WFOV BB heater on at temp. 1
19	02:39:30	872	MFOV BB heater on at temp. 1
20	02:40:30	891	SWICS off
21	02:53:54	883	Detector bias heater on at level 2
22	02:57:36	893	SWICS on at level 2
23	03:00:48	881	Detector bias heater off
24	03:04:30	863	WFOV BB heater on at temp. 2
25	03:05:06	873	MFOV BB heater on at temp. 2
26	03:06:06	891	SWICS off
27	03:19:30	884	Detector bias heater on at level 3
28	03:23:12	894	SWICS on at level 1
29	03:25:18	881	Detector bias heater off
30	03:28:00	852	Solar port heaters off
31	03:29:06	861	WFOV BB heater off
32	03:29:36	871	MFOV BB heater off
33	03:30:06	851	Solar port heaters off
34	03:30:42	891	SWICS off
35	03:41:18	823	Elevate to nadir (Earth)
36	03:45:36	419	Azimuth address A
37	03:46:06	2xx	Azimuth data high byte
38	03:46:42	1xx	Azimuth data low byte
39	03:47:42	822	Elevate to solar ports
40	04:19:42	814	Azimuth to position A
41	04:20:48	883	Detector bias heater on at level 2
42	04:36:48	831	Detector bias heater on at level 2
	04:53:54		(Sun centered in FOV)
43	05:12:00	832	SMA shutter cycle on
44	05:12:30	881	Detector bias heater off



Table 13. Concluded

(c) Concluded

Step	Elapsed UT	Hex command	Event description
	hr:min:sec		
45	05:31:42	882	Detector bias heater on at level 1
46	05:34:24	881	Detector bias heater off
47	05:34:54	883	Detector bias heater on at level 2
48	05:37:36	881	Detector bias heater off
49	05:38:06	884	Detector bias heater on at level 3
50	05:40:48	881	Detector bias heater off
51	05:41:18	852	Solar port heaters off
52	05:57:18	851	Solar port heaters on
53	05:57:54	821	Elevate to internal source (stow)
54	06:13:54	813	Azimuth to 180°
55	07:01:54	823	Elevate to nadir (Earth)
56	08:26:06	882	Detector bias heater on at level 1
57	08:28:48	881	Detector bias heater off
58	08:29:18	883	Detector bias heater on at level 2
59	08:32:00	881	Detector bias heater off
60	08:32:30	884	Detector bias heater on at level 3
61	08:35:12	881	Detector bias heater off

Table 14. Characteristics of ERBS Orbits on January 1, 1985–1990, and of NOAA 10 Orbits on November 1, 1986, and January 1, 1987–1989

(a) ERBS spacecraft

Parameter	Value at beginning of year—					
	1985	1986	1987	1988	1989	1990
Semimajor axis, km . . . . .	6981	6981	6981	6978	6986	6979
Eccentricity . . . . .	0.00189	0.00141	0.00099	0.00158	0.00164	0.00196
Inclination, deg . . . . .	57.00	56.99	57.01	56.99	57.02	57.01
Period, min . . . . .	96.75	96.75	96.75	96.68	96.84	96.70
Mean altitude, km . . . . .	611.28	611.01	610.88	611.17	609.59	604.42
Minimum altitude, km . . . . .	599.65	600.37	602.17	599.64	599.70	592.83
Maximum altitude, km . . . . .	630.08	625.67	623.86	628.26	629.12	621.50
Mean anomaly rate, deg/min . . . . .	3.72	3.72	3.72	3.73	3.72	3.72
Argument of perigee rate of change, deg/day . . . . .	1.75	1.76	1.75	1.76	1.75	1.75
Rotation rate of right ascension of ascending node, deg/day . . . . .	−3.95	−3.97	−3.95	−3.96	−3.94	−3.96
Local time of ascending node, hr:min of day . . . . .	23:17	23:25	23:40	22:40	22:07	21:43

(b) NOAA 10 spacecraft

Parameter	Value at listed date—			
	Nov. 1, 1986	Jan. 1, 1987	Jan. 1, 1988	Jan. 1, 1989
Semimajor axis, km . . . . .	7192	7192	7184	7193
Eccentricity . . . . .	0.00212	0.00186	0.00174	0.00255
Inclination, deg . . . . .	98.74	98.74	98.70	98.65
Period, min . . . . .	101.16	101.17	100.99	101.17
Mean altitude, km . . . . .	829.16	828.61	828.65	827.75
Minimum altitude, km . . . . .	809.22	811.02	808.70	808.14
Maximum altitude, km . . . . .	852.47	842.10	846.18	848.83
Mean anomaly rate, deg/min . . . . .	3.56	3.55	3.56	3.55
Argument of perigee rate of change, deg/day . . . . .	−2.89	−2.87	−2.91	−2.90
Rotation rate of right ascension of ascending node, deg/day . . . . .	0.996	0.988	0.994	0.984
Local time of ascending node, hr:min of day . . . . .	07:31	07:32	07:37	07:36

Table 15. Edit Limits for Key Instrument Housekeeping Measurements

## (a) Nonscanner instrument

Measurement	Telemetry subsystem edit limits					
	Low limit	Unit	High limit	Unit	Rate of change	unit
ERBS spacecraft						
Heat sink temp. of all Earth-viewing detectors . . . . .	33.55	°C	33.75	°C	0.005	°C/sec
Heat sink temp. of solar monitor detector . . . . .	0	↓	30.0	↓	0.003125	↓
Aperture temp. of all Earth-viewing detectors . . . . .	33.0	↓	34.2	↓	0.003125	↓
Aperture temp. of solar monitor detector . . . . .	0	↓	30.0	↓	0.03125	↓
FOVL temp. of all Earth-viewing detectors . . . . .	0	↓	35.0	↓	0.025	↓
WFOV blackbody temp. . . . .	10.0	↓	30.0	↓	0.00625	↓
MFOV blackbody temp. . . . .	10.0	↓	30.0	↓	0.00625	↓
Slice 3 temp. . . . .	0	↓	40.0	↓	0.0625	↓
NOAA 10 spacecraft						
Heat sink temp. of all Earth-viewing detectors . . . . .	33.5	°C	33.7	°C	0.005	°C/sec
Heat sink temp. of solar monitor detector . . . . .	0	↓	30.0	↓	0.003125	↓
Aperture temp. of all Earth-viewing detectors . . . . .	32.2	↓	33.2	↓	0.003125	↓
Aperture temp. of solar monitor detector . . . . .	0	↓	30.0	↓	0.003125	↓
FOVL temp. of all Earth-viewing detectors . . . . .	0	↓	30.0	↓	0.025	↓
WFOV blackbody temp. . . . .	10.0	↓	30.0	↓	0.00625	↓
MFOV blackbody temp. . . . .	10.0	↓	30.0	↓	0.00625	↓
Slice 3 temp. . . . .	0	↓	40.0	↓	0.0625	↓

## (b) Scanner Instrument

Measurement	Telemetry subsystem edit limits					
	Low limit	Unit	High limit	Unit	Rate of change	Unit
ERBS spacecraft						
Det temp.—all . . . . .	37.5	°C	38.5	°C	0.01	°C/sec
DAC voltages—all . . . . .	(a)		(a)		0.0125	V/sec
LW blackbody temp. . . . .	0	°C	50.0	°C	0.1	°C/sec
Total blackbody temp. . . . .	0	↓	50.0	↓	0.1	↓
Slice 3 temp. . . . .	0	↓	50.0	↓	0.0625	↓
Box beam temp. . . . .	10.0	↓	35.0	↓	0.0625	↓
NOAA 10 spacecraft						
Det temp.—all . . . . .	37.5	°C	38.5	°C	0.01	°C/sec
DAC voltages—all . . . . .	(a)		(a)		0.0125	V/sec
LW blackbody temp. . . . .	0	°C	50.0	°C	0.1	°C/sec
Total blackbody temp. . . . .	0	↓	50.0	↓	0.1	↓
Slice 3 temp. . . . .	0	↓	50.0	↓	0.0625	↓
Box beam temp. . . . .	10.0	↓	35.0	↓	0.0625	↓

(a) Not applicable.

Figure 1. Overview of ERBE data processing.

(a) Nonscanner.

(b) Scanner.

Figure 2. Diagram of ERBE instruments illustrating coordinate axes.

(a) ERBS spacecraft.

(b) NOAA spacecraft.

Figure 3. Spacecraft coordinate systems and alignment of axes with instrument axes.

(a) ERBS spacecraft.

(b) NOAA spacecraft.

Figure 4. Alignment between spacecraft and their local horizon coordinates.

(a) February 1987 through January 1988.

Figure 5. Annual  $\beta$  plots for ERBS orbit.

(b) February 1988 through January 1989.

Figure 5. Continued.

(c) February 1989 through January 1990.

Figure 5. Continued.

(d) February 1990 through January 1991.

Figure 5. Concluded.

(a) February 1987 through January 1988.

Figure 6. Monthly  $\beta$  plots for ERBS orbit.

(a) Concluded.

Figure 6. Continued.

(b) February 1988 through January 1989.

Figure 6. Continued.

(b) Concluded.

Figure 6. Continued.

(c) February 1989 through January 1990.

Figure 6. Continued.

(c) Concluded.

Figure 6. Continued.

(d) February 1990.

Figure 6. Concluded.

(a) February 1987 through January 1988.

Figure 7. Annual  $\beta$  plots for NOAA 10 orbit.

(b) February 1988 through January 1989.

Figure 7. Continued.

(c) February 1989 through January 1990.

Figure 7. Concluded.

(a) February 1987 through January 1988.

Figure 8. Monthly  $\beta$  plots for NOAA 10 orbit.

(a) Concluded.

Figure 8. Continued.

(b) February 1988 through January 1989.

Figure 8. Continued.

(b) Concluded.

Figure 8. Continued.

(c) February 1989 through May 1989.

Figure 8. Concluded.

(a) February 1987 through January 1988.

Figure 9. ERBS scanner elevation beam. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 9. Continued.

(c) February 1989 through February 1990.

Figure 9. Concluded.

(a) February 1987 through January 1988.

Figure 10. NOAA 10 scanner elevation beam. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 10. Continued.

(c) February 1989 through May 1989. Asterisks (\*) denote scanner failure on May 22, 1989. No valid data were available after this date.

Figure 10. Concluded.

(a) February 1987 through January 1988.

Figure 11. ERBS nonscanner heat sink temperatures of Earth-viewing detectors. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 11. Continued.

(c) February 1989 through February 1990.

Figure 11. Concluded.

(a) February 1987 through January 1988.

Figure 12. ERBS nonscanner aperture temperatures of Earth-viewing detectors. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 12. Continued.

(c) February 1989 through February 1990.

Figure 12. Concluded.

(a) February 1987 through January 1988.

Figure 13. ERBS nonscanner field-of-view limiter temperatures of Earth-viewing detectors. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 13. Continued.

(c) February 1989 through February 1990.

Figure 13. Concluded.

(a) February 1987 through January 1988.

Figure 14. ERBS solar monitor heat sink and aperture temperatures. Daily values of minimum, mean, and maximum. Asterisks (\*) denote that all data exceeded maximum telemetry edit limits.

(b) February 1988 through January 1989.

Figure 14. Continued.

(c) February 1989 through February 1990.

Figure 14. Concluded.

(a) February 1987 through January 1988.

Figure 15. ERBS nonscanner blackbody temperatures. Daily values of minimum, mean, and maximum. Asterisks (\*) denote date when NOAA 10 nonscanner blackbody temperature setpoints were changed.

(b) February 1988 through January 1989.

Figure 15. Continued.

(c) February 1989 through February 1990.

Figure 15. Concluded.

(a) February 1987 through January 1988.

Figure 16. ERBS nonscanner passive analog temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989. Asterisk (\*) denotes that all data exceeded maximum telemetry edit limits.

Figure 16. Continued.

(c) February 1989 through February 1990.

Figure 16. Concluded.

(a) February 1987 through January 1988.

Figure 17. ERBS scanner detector temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 17. Continued.

(c) February 1989 through February 1990.

Figure 17. Concluded.

(a) February 1987 through January 1988.

Figure 18. ERBS scanner DAC voltages. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 18. Continued.

(c) February 1989 through February 1990.

Figure 18. Concluded.

(a) February 1987 through January 1988.

Figure 19. ERBS scanner blackbody temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 19. Continued.

(c) February 1989 through February 1990.

Figure 19. Concluded.

(a) February 1987 through January 1988.

Figure 20. ERBS scanner passive analog temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 20. Continued.

(c) February 1989 through February 1990.

Figure 20. Concluded.

(a) February 1987 through January 1988.

Figure 21. NOAA 10 nonscanner heat sink temperatures of Earth-viewing detectors. Daily values of minimum, mean, and maximum. Asterisks (\*) denote that all data exceeded maximum telemetry edit limits.

(b) February 1988 through January 1989.

Figure 21. Continued.

(c) February 1989 through January 1990.

Figure 21. Concluded.



(a) February 1987 through January 1988.

Figure 22. NOAA 10 nonscanner detector aperture temperatures of Earth-viewing detectors. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 22. Continued.

(c) February 1989 through January 1990.

Figure 22. Concluded.

(a) February 1987 through January 1988.

Figure 23. NOAA 10 nonscanner detector FOV limiter temperatures of Earth-viewing detectors. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 23. Continued.

(c) February 1989 through February 1990.

Figure 23. Concluded.

(a) February 1987 through January 1988.

Figure 24. NOAA 10 solar monitor heat sink and aperture temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 24. Continued.

(c) February 1989 through January 1990.

Figure 24. Concluded.

(a) February 1987 through January 1988.

Figure 25. NOAA 10 nonscanner blackbody temperatures. Daily values of minimum, mean, and maximum. Asterisks (\*) denote date when NOAA 10 nonscanner blackbody temperature setpoints were changed.

(b) February 1988 through January 1989.

Figure 25. Continued.

(c) February 1989 through January 1990.

Figure 25. Concluded.

(a) February 1987 through January 1988.

Figure 26. NOAA 10 nonscanner passive analog temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 26. Continued.

(c) February 1989 through January 1990.

Figure 26. Concluded.

(a) February 1987 through January 1988.

Figure 27. NOAA 10 scanner detector temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 27. Continued.

(c) February 1989 through January 1990. Asterisks (\*) denote scanner failure on May 22, 1989. No valid data were available after this date.

Figure 27. Concluded.

(a) February 1987 through January 1988.

Figure 28. NOAA 10 scanner DAC voltages. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 28. Continued.

(c) February 1989 through January 1990. Asterisks (\*) denote scanner failure on May 22, 1989. No valid data were available after this date.

Figure 28. Concluded.

(a) February 1987 through January 1988.

Figure 29. NOAA 10 scanner blackbody temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 29. Continued.

(c) February 1989 through January 1990. Asterisks (\*) denote scanner failure on May 22, 1989. No valid data were available after this date.

Figure 29. Concluded.

(a) February 1987 through January 1988.

Figure 30. NOAA 10 scanner passive analog temperatures. Daily values of minimum, mean, and maximum.

(b) February 1988 through January 1989.

Figure 30. Continued.

(c) February 1989 through January 1990. Asterisks (\*) denote scanner failure on May 22, 1989. No valid data were available after this date.

Figure 30. Concluded.

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<b>13. ABSTRACT (Maximum 200 words)</b> Instruments of the Earth Radiation Budget Experiment (ERBE) are operating on three different Earth-orbiting spacecraft. The Earth Radiation Budget Satellite (ERBS) is operated by the National Aeronautics and Space Administration (NASA), and the NOAA 9 and NOAA 10 weather satellites are operated by the National Oceanic and Atmospheric Administration (NOAA). This paper is the third in a series that describes the ERBE mission, in-orbit environments, instrument design and operational features, and data processing and validation procedures. This paper describes the in-flight operations for the ERBE instruments aboard the ERBS and NOAA 10 spacecraft for the period from February 1987 through February 1990. Validation and archival of radiation measurements made by ERBE instruments during this period were completed in May 1992. This paper covers normal and special operations of the spacecraft and instruments, operational anomalies, and the responses of the instruments to in-orbit and seasonal variations in the solar environment.				
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